SERV. 5590

JVC

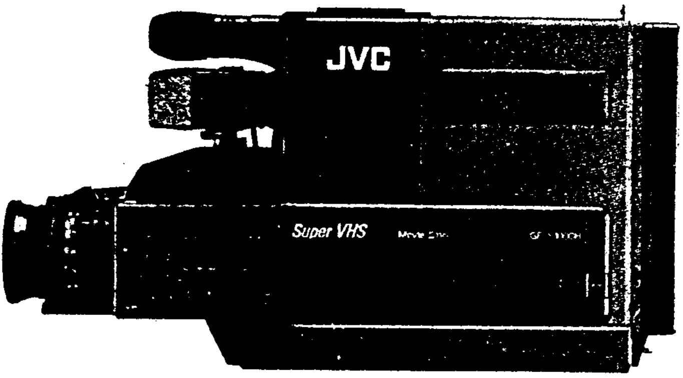
SERVICE MANUAL

VHS VIDEO MOVIE

GF-S1000H EG/EK

S-VHS-C 625 VHS PAL

HQ High Quality



SPECIFICATIONS

Format : S-VHS/VHS PAL standard with Hi-Fi audio
Power source : DC 12 V ⎓
Power consumption : 13 W
Signal system : PAL-type colour signal and separated Y/C signals conforming to PAL, 625 lines
Video recording system : Rotary, two-head helical scan system with slant doubleazimuth combination video heads
Hi-Fi audio recording system : Deep-layer recording system conforming to stereo Hi-Fi VHS standard
No. of audio channels : 2 Hi-Fi audio channels 1 normal audio channel
Cassette tape used : S-VHS and VHS video cassettes
Tape speed : 23.39 mm/sec
Maximum recording time : 240 min. with E-240 video cassette

VIDEO
Output : 1.0 Vp-p, 75 ohms, unbalanced
Input : 0.5 to 2.0 Vp-p, 75 ohms, unbalanced
S/N ratio : 43 dB

AUDIO
Output level : −6 dBs, high impedance load
Output impedance : Less than 1 k-ohm, unbalanced
Input : −8 dBs, more than 50 k-ohms, unbalanced
Microphone input : −68 dBs, high impedance, unbalanced

Hi-Fi AUDIO
Frequency response : 20 Hz to 20,000 Hz
Dynamic range : More than 80 dB
Wow and flutter : Less than 0.005% WRMS

Pickup : 1/2"-format field storage CCD (390,000 pixels effective/420,000 in total)
Minimum required illumination : 10 lux (at F/1.2)
Illumination range : 10 – 100,000 lux
Viewfinder : Electronic viewfinder with 0.7" black/white CRT
Lens : F/1.2, f = 9 – 72, 8:1 two-speed power zoom lens with macro position, filter diameter of 52 mm
Colour temperature switching : Switchable (3,200 K/4,500 K/5,500 K)
White balance adjustment : Auto Tracking white balance
Iris : Center-weighted auto-iris with backlight compensation and manual override
Focus : TCL* Image Sensing auto-focus (auto/manual switchable)
Exclusive microphone : Unidirectional stereo condenser microphone
Variable-speed shutter : Switchable (1/50, 1/250, 1/500 and 1/1000-second)
Operating temperature : 0° C to 40° C
Operating humidity : 35% to 80%
Storage temperature : −20° C to 50° C
Dimensions : 132(W) x 212(H) x 376(D) mm
Weight : 2.7 kg with viewfinder

AC power adapter/battery charger AA-V12EG
Power requirement : AC 110 – 240 V∿, 50/60 Hz
Power consumption : 35 watts
Output : DC 12 V ⎓ 1.2 A
Charging system : Constant current, peak detection, timer controlled
Dimensions : 57(W) x 74(H) x 179(D) mm
Weight : Approx. 650 g

RF unit RF-V3E
Output channel : UHF channel 32 – 40 (adjustable)
Initial channel setting : UHF 36
Power source : DC 8 V ⎓ 20 mA (from VideoMovie)
Dimensions : 52(W) x 80(H) x 24(D) mm excl. cable
Cable length : 2.5 m
Weight : Approx. 160 g

Provided accessories:

AC power adapter/battery charger	AA-V12EG
S-VHS cassette tape	SE-30
Battery pack	BN-V90U
AV output cable	VC-V8961SE
RF unit	RF-V3E

Carrying handle
Electronic viewfinder
Lens cap
Shoulder strap
Stereo headphones
Lens hood
Lithium battery for clock operation

*A registred trademark.
Design and specifications subject to change without notice.

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No. 86056
February 1989

NOTE: For a technical description, please refer to Technical Guide VTG86012 GF-S1000H PAL.

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Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

ADVARSEL!

LITHIUMBATTERIER. EKSPLOSIONSFARE.
UDKSIFTNING MÅ KUN FORETAGES AF SAGKYNDIG
OG SOM BESKREVET I SERVICEMANUALEN

● Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded (▨) parts are critical for safety.
   Replace only with specified part numbers.
   Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Fuse replacement caution notice.
   Caution for continued protection against fire hazard.
   Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers
   4) Insulation sheets for transistors
   5) Barrier

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

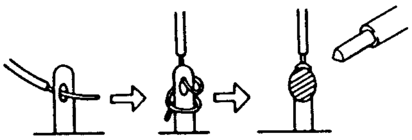

Fig. 1

7. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10–15 kg of force in any direction will not loosen it.

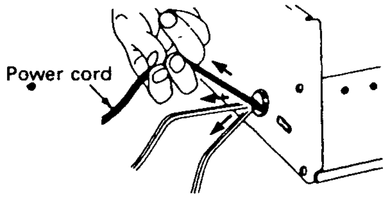

Fig. 2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector
    In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.

    1) **Connector part number** : E03830-001
    2) **Required tool** : Connector crimping tool of the proper type which will not damage insulated parts.
    3) **Replacement procedure**
       (1) Remove the old connector by cutting the wires at a point close to the connector.
       Important : Do not reuse a connector (discard it).

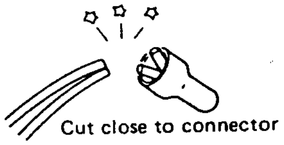

Fig. 3

       (2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

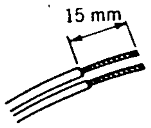

Fig. 4

       (3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

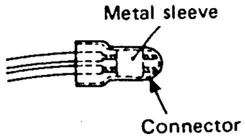

Fig. 5

       (4) As shown in Fig. 6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

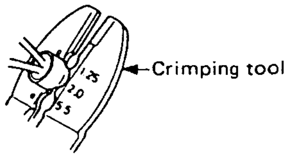

Fig. 6

       (5) Check the four points noted in Fig. 7.

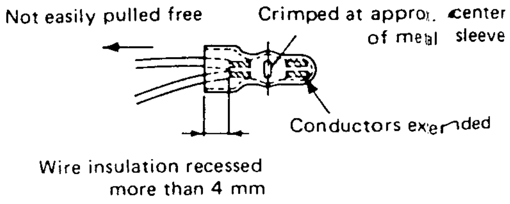
Not easily pulled free
Crimped at approx. center of metal sleeve
Conductors extended
Wire insulation recessed more than 4 mm

Fig. 7

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SAFETY PRECAUTIONS

WARNING:
TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

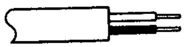
This equipment should be used with DC 12 V ⎓ only.
CAUTION:
To prevent electric shocks and fire hazards, do NOT use any other power source.

The AA-V12EG AC Power Adapter/Battery Charger should be used with 110 – 240 V∿, 50/60 Hz only.
Caution:
To prevent electric shocks and fire hazards, do NOT use any other power source.

IMPORTANT (In the United Kingdom) Mains Supply (240 V∿, 50 Hz only)

IMPORTANT

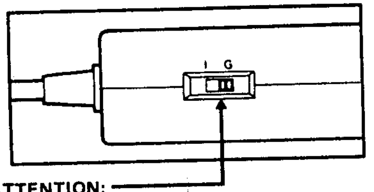
Do not make any connection to the Larger Terminal coded E or Green. The wires in the mains lead are coloured in accordance with following code:



If these colours do not correspond with the terminal identifications of your plug, connect as follows:
Blue wire to terminal coded N (Neutral) or coloured Black.
Brown wire to terminal coded L (Live) or coloured Red.
If in doubt – consult a competent electrician.
Note
We recommend that you should disconnect the AC cord from the outlet.

Cassettes marked "S-VHS" and "VHS" can be used with this VideoMovie. However, S-VHS recordings are possible only with cassettes marked "S-VHS".

Warning on lithium battery
The battery used in this device may present a fire or chemical burn hazard if mistreated. Do not recharge, disassemble, heat above 100°C or incinerate.
Replace battery with Matsushita Electric, CR 2025; use of another battery may present a risk of fire or explosion.
- Dispose of used battery prompty.
- Keep away from children.
- Do not disassemble and do not dispose of in fire.



ATTENTION:
The system select switch on the side of the provided RF unit RF-V3E has been set to G (Continental PAL, 5.5 MHz).

CAUTION:
To prevent shock, do not open the cabinet. No user serviceable parts inside. Refer servicing to qualified personnel.

NOTES:
- The rating plate (serial number plate) and safety caution of the main unit are on its bottom.
- The rating plate (serial number plate) of the viewfinder is on its bottom.
- The rating plate (serial number plate) of the AC power adapter/battery charger is on its side.

The provided viewfinder is the VF-V1000E. Do not use any other viewfinder with the GF-S1000HE.

This equipment has been produced to comply with Directive number 82/499/EEC.

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PRECAUTIONS

For safety, strictly observe the following instructions.
- Do not open the cabinet.
- Prevent inflammables, water and metallic objects from entering the unit.
- Do not disassemble or modify the unit.
- Do not use the unit when there is lightning in the vicinity. Disconnect the power cable of connected equipment.

Avoid using the unit under the following conditions:
- Places subject to excessive humidity or dust.
- Near appliances generating strong magnetic or electric fields (speakers, broadcasting antennas, etc.).
- Places subject to soot or steam such as near a cooking stove.
- Places subject to excessive shock or vibration.
- Near a television set (rolling pictures or howling might result).
- Extremely hot places.

Do not expose the unit to high temperatures over 40°C for long periods.
If the unit should be subjected to direct sunlight, or left in a closed car in summer, or placed near a heater, the CCD and the auto-focus sensor may deteriorate and the cabinet may become deformed. Furthermore, this also may cause the transistors and other electronic and mechanical parts to malfunction. Remember the following:
- Do not leave the unit in places of over 30°C.
- Do not use the unit in places of over 40°C.
- Do not use the unit in places of below 0°C.
- Protect the unit from excessively dry or humid conditions (below 35 % or above 80 % humidity).
- For long storage, select a place between -20°C and 30°C.

Take special care for protection of the unit.
- Do not allow the unit to become wet.
- Do not leave the unit in closed cars on hot summer days.
- Take special care not to drop the unit or strike it against hard objects. Protect from shocks during transportation.

Make it a rule to observe the following instructions.
- Do not remove the battery pack or disconnect other power supply units during recording or playback before pressing the POWER switch to OFF. If not observed, this will cause tape damage.
- When the unit is not in use, remove the battery pack.

Keep the lens and viewfinder eyepiece always clean.
- When the lens is dirty or dusty, blow it off first and then gently wipe with a soft brush or lens cleaning paper.
- The lens is likely to become moldy if left dirty.

Serious malfunctioning

If malfunctioning occurs, stop using the unit immediately and consult your local JVC dealer.

Be careful not to damage the CCD.
- Do not keep the lens directed at extremely bright objects such as the sun or other light sources for long periods. Although the CCD is less susceptible to such burn than a tube would be, caution should be exercised when using this unit. Most importantly, the lens should be capped except while actually shooting.
- If the aperture is left open, even while the camera is not being powered, the CCD may be damaged.
- Do not direct the eyepiece of the viewfinder at the sun.

Auto-focus requires a bit of consideration.
- Do not touch the focus ring while the auto-focus mechanism is in operation as this could damage the auto-focus mechanism.
- When a filter or a special-effect lens is to be attached to the end of the lens, be sure to turn power off or switch from the Auto-focus mode to the Manual mode. NEVER attempt to attach a filter or lens while the auto-focus mechanism is operating as this will result in malfunctioning. (If a teleconversion or wide-angle conversion lens is attached, the Auto-focus mode cannot be used.)

Handle the unit carefully.
- Protect the microphone from excessive shocks.
- Do not carry the unit by holding it only by the viewfinder.

Moisture condensation disenables use of the unit.
- You have observed that pouring a cold liquid into a glass will cause drops of water to form on the glass's outer surface. This same phenomenon occurs on the head drum of a VideoMovie when it is moved from a cool place to a warm place, after heating a cold room, under extremely humid conditions or in a place directly subjected to the cool air from an air conditioner.
- Moisture on the head drum can cause severe damage to the video tape, and can lead to internal damage to the VideoMovie itself.
- If moisture condensation occurs on the head drum, a condensation warning appears in the counter display and the unit enters the Stop mode, unable to function. In such a case, wait for a few hours until the indicator disappears.

Maintenance
- When the cabinet is dusty, clean by gently wiping with a soft cloth.
- Avoid the use of strong cleaning agents such as benzine or alcohol as they may damage the cabinet.
- Cleaning should be done only after the battery pack has been removed or other power units have been disconnected.

JVC

INSTRUCTIONS

MANUEL D'INSTRUCTIONS/BEDIENUNGSANLEITUNG/
MANUAL DE INSTRUCCIONES/GEBRUIKSANWIJZING/BRUKSANVISNING

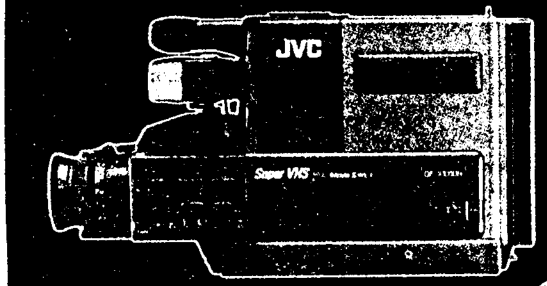
VideoMovie S-VHS

VHS
PAL
625

HQ

CAMERA-RECORDER/PLAYER

GF-S1000HE



Specifically for the GF-S1000HE/AA-V12EG

CCD
Charge Coupled Device

AF
AUTO FOCUS

Hi-Fi
STEREO

CAMERA/GRABADORE GF-S1000HE
Especialmente para la GF-S1000HE/AA-V12EG

CAMERA-ENREGISTREUR/LECTEUR GF-S1000HE
Spécial pour le GF-S1000HE/AA-V12EG

KAMERA/RECORDER GF-S1000HE
Speciaal voor de GF-S1000HE/AA-V12EG

KAMERA-REKORDER GF-S1000HE
Für modellausführung GF-S1000HE/AA-V12EG

KAMERA/BANDSPELARE GF-S1000HE
Speciellt avsedd för GF-S1000HE/AA-V12EG

YU30052-50

Attach the lens cap to the grip strap as shown when removed.

Fixer le capuchon d'objectif sur la courroie de poignée comme montré quand il est retiré.

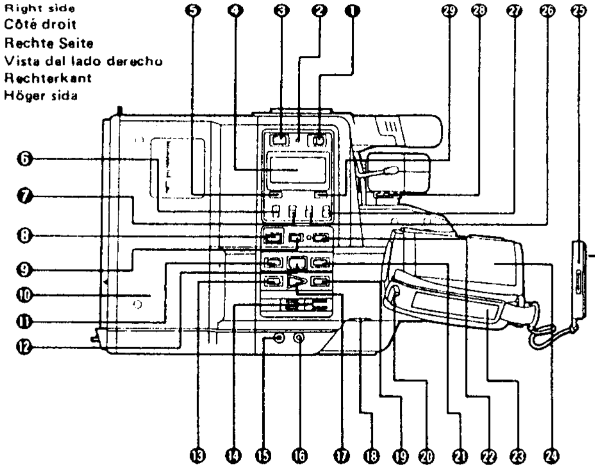
Die Objektivkappe nach Abnehmen wie gezeigt am Griffband anbringen.

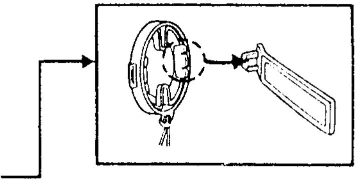
Fije la tapa del objetivo en la correa de sujeción, tal como se muestra, cuando la saque.

Bevestig de lenskap aan de riemgreep zoals aangegeven, indien deze losgemaakt is.

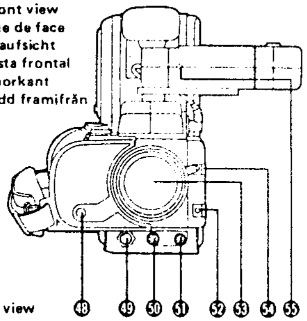
Sätt fast objektivlocket på handremmen som bilden visar vid inspelning.

Right side
Côté droit
Rechte Seite
Vista del lado derecho
Rechterkant
Höger sida

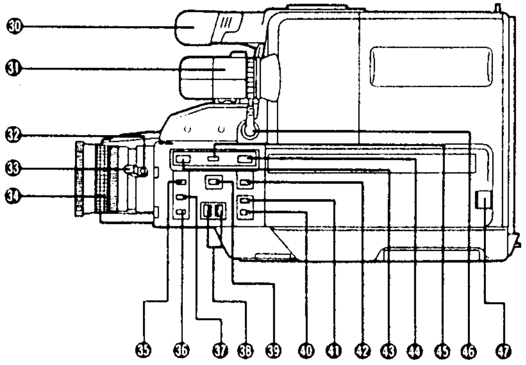




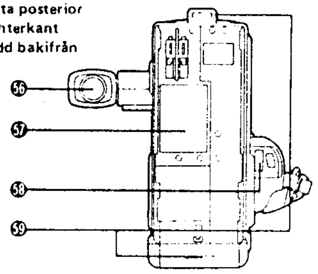
Front view
Vue de face
Draufsicht
Vista frontal
Voorkant
Sedd framifrån



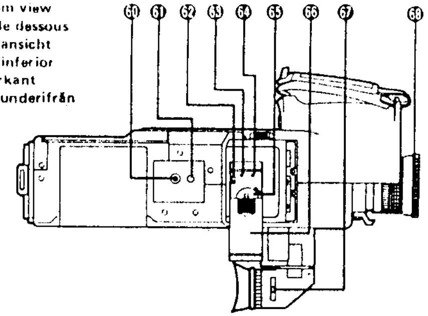
Left side
Côté gauche
Linke Seite
Visa del lado izquierdo
Linkerkant
Vänster sida

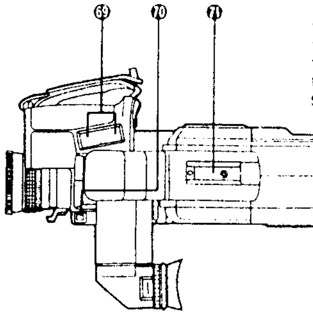


Rear view
Vue arrière
Rückansicht
Vista posterior
Achterkant
Sedd bakifrån



Bottom view
Vue de dessous
Unteransicht
Vista inferior
Onderkant
Sedd underifrån

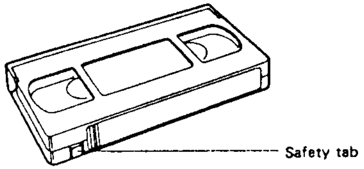




Top view
Vue de dessus
Vorderansicht
Vista superior
Bovenkant
Sedd ovanifrån

VIDEO CASSETTES

- The GF-S1000HE employs S-VHS and VHS cassettes only.
  S-VHS : SE-180 for 3 hours, SE-60 for 1 hour and SE-30 for 30 minutes of recording.
  VHS : E-240 for 4 hours, E-180 for 3 hours, E-120 for 2 hours, E-90 for 1 hour and 30 minutes E-60 for 1 hour and E-30 for 30 minutes of recording.
- Recording onto prerecorded tapes automatically erases the previously recorded video and audio signals.
- An inverted cassette cannot be inserted.
- Do not load and unload the cassette repeatedly without allowing the tape to run at all. This will slacken the tape and thereby damage it.
- The cassette is equipped with a safety tab to prevent accidental erasure. When the tab is removed, recording is impossible. If you wish to record on a cassette whose tab has been removed, use adhesive tape to reseal the slot.



Storage of cassettes

- Avoid exposing the cassettes to direct sunlight. Keep them away from heaters.
- Avoid storing the cassettes in humid or dusty places.
- Do not drop the cassettes. Do not expose them to violent vibrations or shocks.
- Do not expose the cassettes to strong magnetic fields (near a motor, transformer or magnet).
- Place the cassettes in cassette cases and position them vertically.

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FEATURES

S-VHS: A new dimension in video

- S-VHS is a format, newly developed for the age of visual information, with technologies of further improved resolution and for higher picture quality.
- S-VHS realizes improved pictures of revolutionary quality with a horizontal resolution of more than 400 lines, when used in combination with newly developed, high-performance S-VHS cassettes.
- S-VHS VideoMovies also record and play back conventional VHS video cassettes.
- Separated Y/C (luminance/chrominance) terminals for higher picture quality.

HQ System for VHS mode

- HQ (High Quality) System composed of a luminance signal noise reduction circuit (YNR), chrominance signal noise reduction circuit (CNR), detail enhancer (DE) and a higher white clip level, for producing better VHS pictures.
- Luminance signal comb filter for improved resolution.

Consistent picture quality in all modes

- Super Double-Azimuth 4-head (Super DA-4) system for optimum performance.
- Improved search picture quality.
- Flying erase head for precise, quality assemble/insert editing.

Hi-Fi stereo sound

- Conforms to the Hi-Fi VHS standard for superlative stereo sound with a dynamic range of more than 80 dB.
- New switching noise reduction system for cleaner-than-ever high-fidelity sound reproduction.
- Hi-Fi recording level control with peak-hold level indicator and ALC switch.

Other value features

- Newly developed high-resolution 1/2" field-storage type CCD (Charge Coupled Device) pickup with 420,000 pixels delivering pictures of a more-then-420-line horizontal resolution.
- Variable-speed shutter: 1/1000, 1/500, 1/250 and 1/50 (normal) second.
- Powerful, two-speed 8:1 power zoom lens with macro function.
- One-button full-auto operation of focus, exposure and white balance adjustment.
- High-sensitivity/low-lag design: allows shooting in light as low as 10 lux.
- TCL* Image Sensing auto-focus system with manual override.
- Automatic Colour Tracking white balance with three preset positions.
- Backlight compensation button.
- Audio/video fader linked to twin start/stop trigger system.
- Ultra-compact adjustable electronic viewfinder (monochrome CRT, 0.7-inch screen) with diopter control, also for instant on-the-spot playback.
- Selectable automatic date recording function.
- Recordable date/time display.
- Elapsed recording time counter.
- Second recording start/stop button provided.
- Dubbing mode switch provided for making better dubbings.
- Selectable quick review function.
- One-button recording standby mechanism.
- Master Edit Control system: allows control of both GF-S1000HE and designated JVC VCR using GF-S1000HE's controls, and preroll editing for edits free of transition-point gaps and noise.
- Shuttle Search in both directions.
- Ergonomic design with palm grip and thumb rest for trigger control.
- Three-way power supply flexibility: battery pack, AC power adapter, and car battery.
- Re-take function enables search picture play back in Record Pause mode.

*A registered trademark.

The GF-S1000HE is designed to be used with PAL -type colour television signals. It cannot be used for playback with a television of a different standard. However, live recording and viewfinder playback are possible anywhere. Use the NB-P4U/BN-V90U battery packs and, to recharge them, the provided multivoltage AA-V12EG AC power adapter/battery charger. (An appropriate conversion adapter may be necessary to accommodate different designs of AC outlets in different countries.)

Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions, Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

Insulation resistance test
Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

Dielectric strength test
Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

Clearance distance
When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

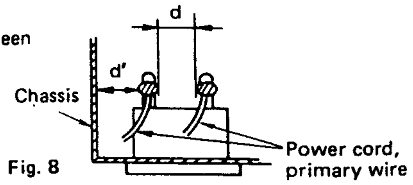


Fig. 8

Leakage current test
Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).
Measuring Method: (Power ON)
Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

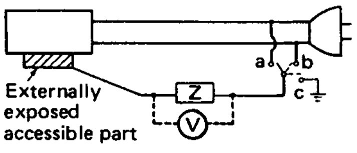


Fig. 9

Grounding (Class I model only)
Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).
Measuring Method:
Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.

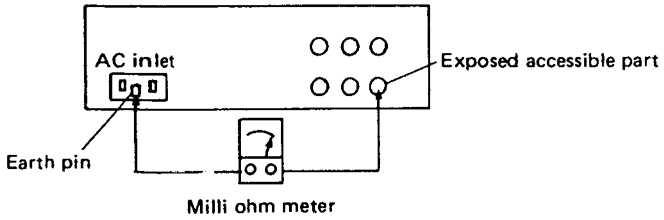


Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	Z ≦ 0.1 ohm
Europe & Australia	Z ≦ 0.5 ohm

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	R ≧ 1 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3 mm
100 to 240 V			AC 1.5 kV 1 minute	d, d' ≧ 4 mm
110 to 130 V	USA & Canada	—	AC 900 V 1 minute	d, d' ≧ 3.2 mm
110 to 130 V 200 to 240 V	Europe & Australia	R ≧ 10 MΩ /500 V DC	AC 3 kV 1 minute (Class II) AC 1.5 kV 1 minute (Class I)	d ≧ 4 mm d' ≧ 8 mm (Power cord) d' ≧ 6 mm (Primary wire)

Table 1 Specifications for each region

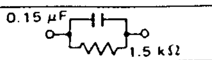
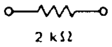
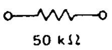
AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	1 kΩ	i ≦ 1 mA rms	Exposed accessible parts
110 to 130 V	USA & Canada	 0.15 µF 1.5 kΩ	i ≦ 0.5 mA rms	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia	 2 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Antenna earth terminals
		 50 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Other terminals

Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

CONTROLS AND CONNECTORS

ENGLISH

Right side

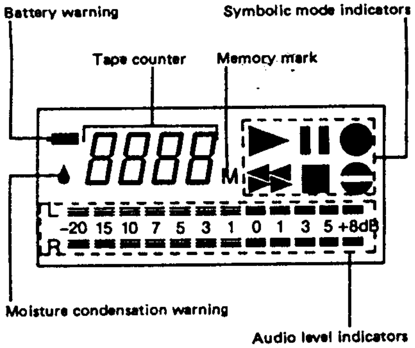
① POWER switch
Press to turn the power on. The Stop indicator appears on the LCD. Press again to switch off power.

② S-VHS mode indicator
This LED lights when the S-VHS recording mode (Auto Select mode) is selected and a cassette marked with S-VHS is inserted, recorded or played back.

③ RECORD button
Press to engage the Record Standby mode. To start recording, press the recording start/stop button (58) , (70) .

④ LCD (Liquid Crystal Display)

Tape counter : Shows from "0" to "9999".
Battery warning : Flashes when the battery power becomes insufficient for normal operation.
Condensation warning: Appears when excessive moisture condensation occurs inside the unit.
Memory mark : Appears when the MEMORY button is pressed.



Symbolic mode indicators

STOP:	■	REWIND:	◀◀
PLAY:	▶	FAST FORWARD:	▶▶
PAUSE: (STILL)	❚❚	REVERSE SHUTTLE SEARCH:	▶◀◀
RECORD:	●	FORWARD SHUTTLE SEARCH:	▶▶▶
RECORD PAUSE:	● ❚❚	AUDIO DUBBING:	⊖

⑤ Counter MEMORY button
Press this button at a point on the tape you want to locate later after resetting the counter to "0", and the tape will stop automatically at the counter reading of around "0" during rewind or fast forward.

⑥ AUDIO OUT mode select switch
Selects the audio track(s) to be listened to. This switch is effective for all audio output (PHONES and AUDIO OUT).

NORM : to listen to the sound on the longitudinal (normal) audio track.
MIX : to listen to the mixed sound on the Hi-Fi and normal audio tracks (for example, to enjoy Hi-Fi audio while at the same time listening to a narration dubbed onto the normal audio track).
Hi-Fi : to listen to the sound on the Hi-Fi audio track.

⑦ ALC switch
Set to AUTO to activate the automatic level control circuit for hi-fi audio. For manual control of the hi-fi audio recording level, set this switch to OFF and use the Hi-Fi AUDIO REC LEVEL controls ⑭ for adjustment.

⑧ EJECT switch
To open the cassette holder.

⑨ EDIT START button
When dubbing from the GF-S1000HE to a designated JVC VCR, pressing this button starts VideoMovie playback and, in synchronization with it, the VCR's recording.

⑩ Cassette holder
Insert an S-VHS or VHS cassette for recording or playback.

⑪ AUDIO DUB button
Press this button together with the PLAY button ⑰ for audio dubbing. Audio dubbing is possible only on the longitudinal audio track. See page 34.

⑫ STOP button
Press to engage the Stop mode.

⑬ REW/SHUTTLE SEARCH button
Pressing this button in the Stop mode rewinds the tape; pressing it in the Play mode allows fast playback in reverse, and pressing in the Recording Standby mode allows normal-speed playback in reverse.

⑭ Hi-Fi AUDIO REC LEVEL controls

⑮ Headphone jack (PHONES)

⑯ REMOTE control jack
For connection of the optional RM-P1U pause remote control unit, or the RM-V10U remote control unit.

⑰ PLAY button
Press to play back the tape or cancel the Pause/Still mode. Also press this button together with the RECORD button ③ for recording or with the AUDIO DUB button ⑪ for audio dubbing.

⑱ TRACKING control
Minimises noise bars, if observed, during playback and minimises Hi-Fi audio distortion if heard during playback. See page 26.

⑲ FF/SHUTTLE SEARCH button
Pressing this button in the Stop mode fast-forwards the tape; pressing it in the Play mode allows fast playback, and pressing in the Recording Standby mode allows normal-speed playback.

⑳ Lens cap holder

㉑ PAUSE/STILL button
Press to view a still picture during playback or to stop playback temporarily. Each time.this button is pressed, the still picture will advance slightly.

㉒ INSERT button
Press this button for insert editing.
The LED indicator lights.

㉓ Grip strap
Secures the operator's hand to the hand grip. Adjusts to fit hand size.

㉔ Hand Grip

㉕ Lens cap

㉖ DUB MODE ON/OFF switch
Normally, set to OFF. For best picture quality when dubbing, set it to the ON position.

㉗ VIDEO OUT switch
Selects the signal output via the 8-pin AV OUT terminal (61) . See pages 27 and 28.

Y/C: Set to this position when delivering the S-VHS signal (Y/C separated video signal) to equipment connected to the AV OUT terminal.
CVBS: Set to this position when delivering the ordinary video signal to equipment connected to the AV OUT terminal.

㉘ Viewfinder mount
Attach the provided viewfinder.

㉙ Counter RESET button
Press to reset the counter to "0".

Left side

㉚ Exclusive microphone (detachable)
Omnidirectional condenser stereo microphone for simultaneous sound recording.

㉛ Electronic viewfinder
For monitoring the scene being shot or the playback picture after recording. Several indicators are included, as well as the date/time or elapsed recording time if selected.

㉜ Macro button
Turn the zoom ring while pressing this button for macro shooting.

㉝ Manual zoom lever
Use to turn the zoom ring manually.

㉞ Focus ring

㉟ WHITE BAL select button
The white balance setting is manually selectable using this button.

☼ : Halogen or tungsten lighting.
▭ : Fluoresent lighting.
☼ : Daylight.

㊱ FULL AUTO button
Pressing this button puts the focus, iris, AGC and white balance under automatic control and selects the standard shutter speed. Auto-focus can be cancelled by pressing the FOCUS button; auto white balance can be cancelled by pressing the WHITE BAL button ㉟ ; auto iris can be cancelled by pressing either IRIS button ㊳ ; AGC can be cancelled by pressing AGC button ㊲ to off, the high-speed shutter can be selected by pressing the SHUTTER SPEED button ㊴ . Pressing the FULL AUTO button in the full-auto mode has no effect.

㊲ AGC AUTO/OFF button
Usually set to AUTO; the AGC circuit will automatically start operation if illumination is insufficient.

㊳ IRIS buttons
The iris setting can be compensated (or varied) allowing more image expression. Press "+" button to over-expose the picture, "–" button to underexpose the picture. Each pressing of the button increases (reduces) the f-stop.

㊴ SHUTTER SPEED select button
Press to switch the shutter speed. Each pressing selects the speeds in the following order.

→ Standard (1/50 second) → 1/250 second → 1/500 second → 1/1000 second →

㊵ REC TIME ON/OFF switch
When this switch is set to ON, the viewfinder displays the elapsed recording time. Switch to OFF to cancel the display.

㊶ REC TIME RESET button
Press this button to reset the elapsed recording time to zero. Ejecting the cassette also does this.

㊷ DISPLAY SELECT button
Press this button to select the date/time display. It cycles through the modes in the following order:

→ Auto date record reserve → Date display → Date/time display → Time display →

The auto-date-record function automatically displays and records the date for 5 seconds upon turning on the power and beginning recording. Before recording begins, this mode is indicated in the viewfinder by "–.–.–".

㊸ **FOCUS mode select button**
Press once for automatic focus, and press again to focus manually. See page 22 for manual focus indications.

㊹ **DATE/TIME REC button**
Press to record the displayed date, time, or date and time. Recording continues until this button is pressed again. Note that when the auto-date-record function has been chosen using the DISPLAY SELECT button ⑫ , the date will be briefly recorded regardless of this button's setting.

㊺ **QUICK REVIEW button**
If you want to review the end of the previous recorded segment for confirmation, press this button from the Record Standby mode.

㊻ **Viewfinder cable connector**

㊼ **Power unit release button (BATTERY RELEASE)**
Press this button to remove the attached battery pack, AC power adapter or car battery adapter.

Front

㊽ **White balance sensor window**

㊾ **AV/[S] IN terminal**
When dubbing or editing, use the S-VIDEO input cable VC-V804E (optional) and/or AV input cable VC-V83U (optional) to connect this terminal to external sources for recording video and audio signals from those sources.

㊿ **[S] OUT terminal**
Using the S-VIDEO cable VC-V44U (optional), connect this terminal to a 2nd S-VHS video recorder or a video monitor equipped with an S-VIDEO IN terminal for dubbing or monitoring.

(51) **AV OUT terminal**
Using the AV output cable (provided) connect this terminal to another VCR for dubbing or editing (using the Master Edit Control function).

(52) **FADER button**
To prepare a fade out of the picture to a black blank screen, press this button, then press the recording start/stop button (58) to start fading out. To fade in from a black blank screen, press this button, then press the recording start/stop button to start fading in.

(53) **8:1 power zoom lens**
F/1.2 f = 9 – 72, filter diameter: 52 mm.

(54) **BLC button**
For backlight compensation, press this button. While it is being pressed, the iris is 1 – 2 f-stops wider than the automatic setting.

(55) **Tally lamp**
Blinks during recording.

Rear

(56) **Eye cup**

(57) **Power unit mount**

(58) **Recording start/stop button**
Press this button in the Recording Standby mode to start recording. Pressing it again re-engages the Recording Standby mode.

(59) **Eyelets for attaching the shoulder strap**

Bottom

(60) **Tripod mounting socket**

(61) **Stud hole**

(62) **S-VHS mode select switch**
Set to ON-AUTO to automatically select (detect) the mode according to an inserted cassette (S-VHS mode for S-VHS cassette, VHS mode for VHS cassette); set to OFF to record and play back in the VHS mode regardless of type of cassette.

(63) **DATE/CLOCK SELECT button**
Use to select the portion of the clock or date settings to be changed. Cycles through the year, month, day, hour, and minute settings. To end adjustment, press once after selecting the minute portion.

(64) **DATE/CLOCK SET button**
Use to set the built-in clock and date function.

(65) **BACK UP BATTERY**

(66) **BACK UP BATTERY compartment**
Holds the lithium battery that powers the date and time function. See page 25.

(67) **Dioptric adjustment control**
Adjusts the viewfinder lens to suit the operator's eyesight.

(68) **Lens hood**

Top

(69) **Power zoom buttons**
For automatic zooming at slow speed, press lightly. For regular speed zooming, press firmly. "T" is for telephoto zooming and "W" is for wide-angle zooming.

(70) **Second recording START/STOP (sub trigger) button**
Functions exactly as the main recording start/stop button (58) . Use for low-angle shots when recording with the GF-S1000HE held low.

(71) **Accessory shoe**
Use this accessory shoe to attach the carrying handle (provided) or an optional shoe adapter.

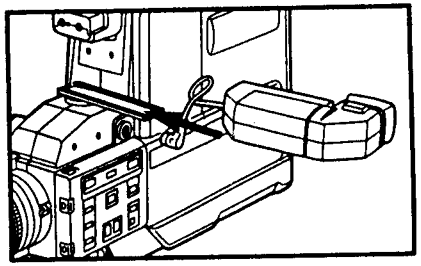
BASIC PREPARATIONS

Mounting the Viewfinder

Switch off power before mounting or removing viewfinder.

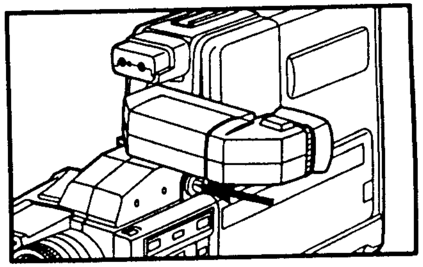
Mounting the viewfinder

1

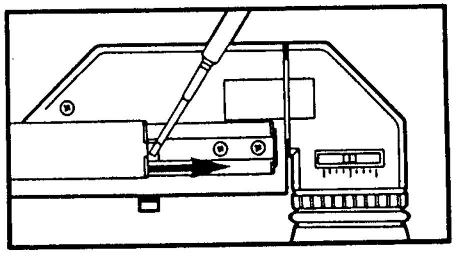


Slide the viewfinder holder into the mounting shoe.

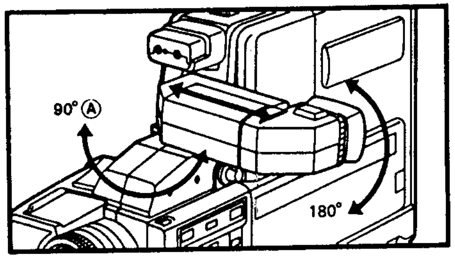
2



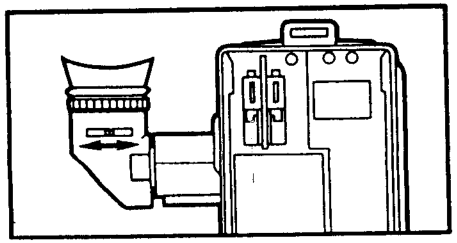
Connect the viewfinder cable to the viewfinder cable connector. Run it through the cable clamp.



Removing the viewfinder
Slide away the viewfinder holder until the latch engages the hole. Push the latch with a small pointed object (like a ballpoint pen) and pull out the viewfinder.

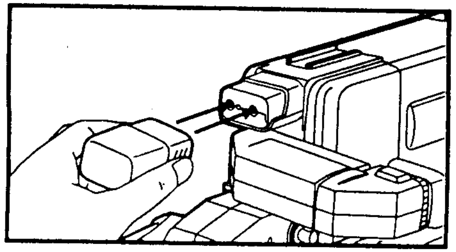


Positioning the viewfinder
The viewfinder can be positioned for best viewability. It can be slid left and right, rotated 90° and tilted 180°. The horizontal, outer-most position allows left-eye monitoring. When storing or carrying the camera, rotate and keep the viewfinder at position Ⓐ .



Diopter adjustment
The viewfinder lens can be adjusted to suit the operator's eyesight by moving the dioptric adjustment control located underneath the eye cup.

Mounting the Microphone

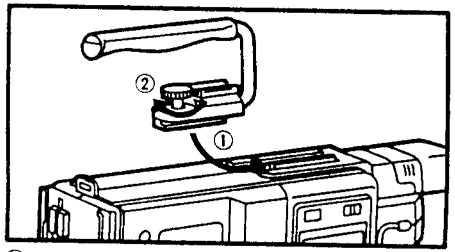


Attach the provided microphone as shown.

- When attaching, do not hold by the sponge section but by the plastic section.
- When using microphone(s) other than the one provided, see "USING OPTIONAL ACCESSORIES" on page 39.

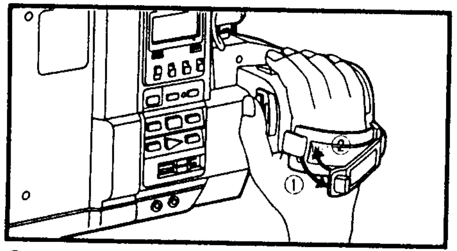
Attaching the Carrying Handle

The provided carrying handle aids in carrying the unit.



① Insert the handle into the accessory shoe.
② Tighten the securing knob in the direction of the arrow to hold the handle firmly in place.

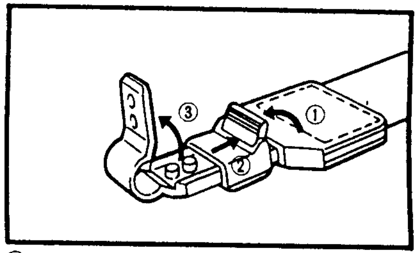
Grip Strap



① Separate the Velcro strip to expand the loop.
② Pass your right hand through the loop and grasp the lens grip. Adjust the length of the strap to suit your hand size and refasten the Velcro strip.

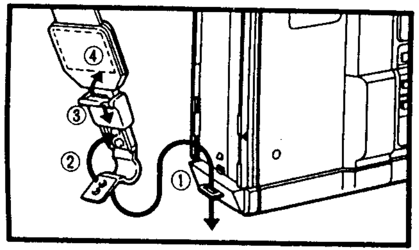
Attaching the Shoulder Strap

1



① Pull up the lock lever.
② Slide the lock lever in the direction of the arrow.
③ Open the hook.

2



① Loop the hook of the shoulder strap through the eyelet.
② Fasten the hook, aligning the projections with the holes.
③ Slide the lock lever back until it clicks in place.
④ Press the lock lever down to secure the strap.

POWER SUPPLY SYSTEM

The convenient 3-way power supply system gives you a choice of the most appropriate power supply unit, depending on the application.

CAUTION

- No function is available without power supply.
- Do not use any power supply other than specified.
- Never attempt to use these power supply units with any equipment other than the GF-S1000HE.

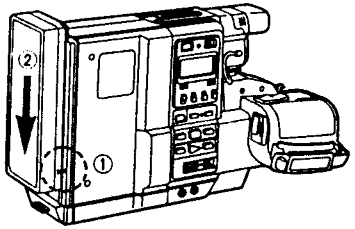
Where AC power is not available

Use the battery packs:

- BN-V90U (High-capacity) (provided)
- NB-P4U (Regular) (optional)

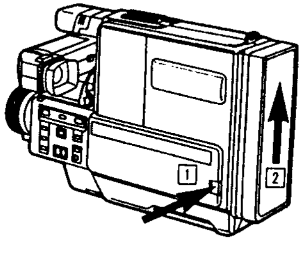
To attach

① Align the marks.
② Slide the battery pack in the direction of the arrow until it locks.



To remove

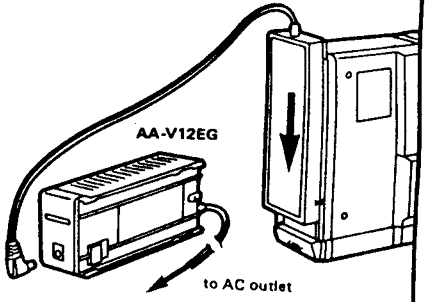
[1] Press the battery pack release button.
[2] Remove the battery pack by sliding it in the direction of the arrow.



- Remove the battery pack when not in use.
- For charging the battery packs refer to page 37.

With AC power

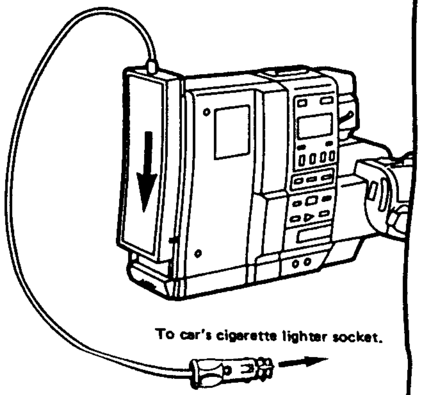
Use the provided AA-V12EG AC power adapter.



In a car

Use the optional AP-P3E car battery cord.

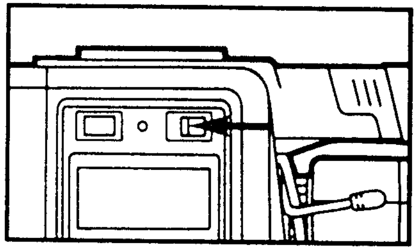
- Leave the car's engine idling when using the car battery. (For use with 12 V negative-grounded cars only.)



LOADING AND UNLOADING A VIDEO CASSETTE

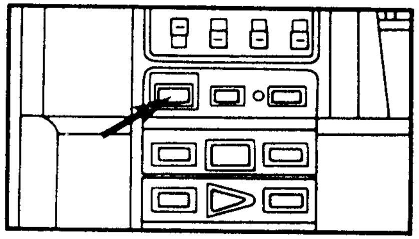
LOADING

1



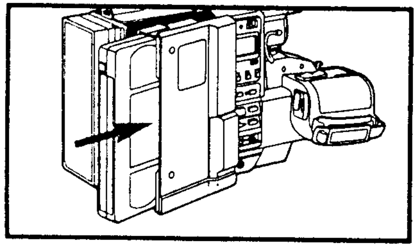
Press the POWER switch to turn power on.

2



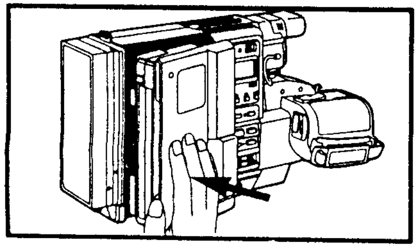
Open the cassette holder by pressing the EJECT button.

3



Insert the cassette with its printed arrow facing inward.

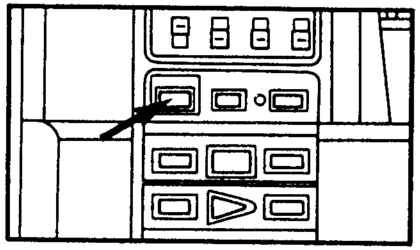
4



Close the cassette holder.

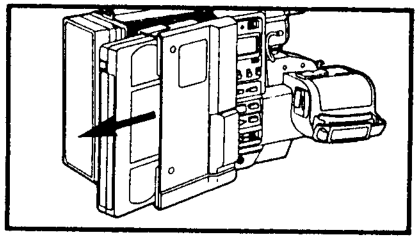
UNLOADING

1



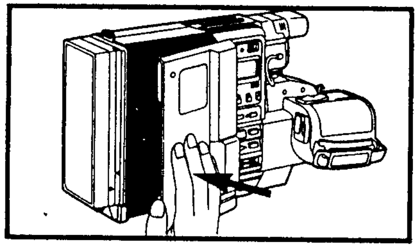
Make sure the unit is in the Stop mode. Press the EJECT button. The cassette holder will open.

2



Remove the cassette.

3



Close the cassette holder.
- When not in use, switch off power.

Notes:
- Do not repeat loading and unloading of the cassette without running the tape, as this will slacken the tape, causing tape damage.
- When the battery is discharged, the tape is unwound from the tape path and the power turns off. However, pressing the EJECT button turns the power on and ejects the cassette.

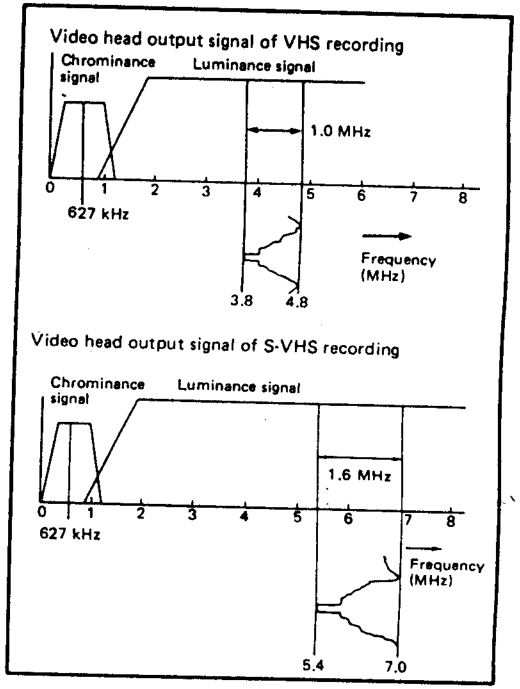
FOR A BETTER UNDERSTANDING OF S-VHS AND VHS

S-VHS vs. VHS

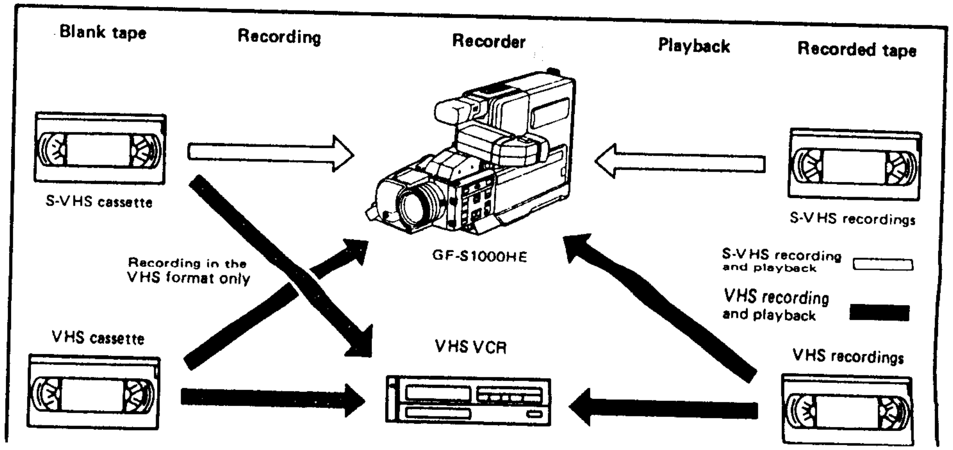
- VHS is the world's most popular video format. If you already own a VCR, most likely it is a VHS machine.
- S-VHS is a new video sub-format based on VHS. It offers superior picture quality with a horizontal resolution of more than 400 lines by shifting the FM carrier frequency of the luminance signal from the conventional 3.8 – 4.8 MHz range to a higher one of 5.4 to 7 MHz.

- The GF-S1000HE is equipped for recording and playback in both the S-VHS and VHS formats. Therefore, you can still play back your VHS software programmes and previously recorded family recordings.
- You can switch to the world of S-VHS for your new recordings to enjoy breathtaking picture quality. Or to exchange recordings with someone whose VCR is not S-VHS, simply record in the VHS mode, whether with a regular VHS cassette or an S-VHS cassette.

Recording Signal Spectrum

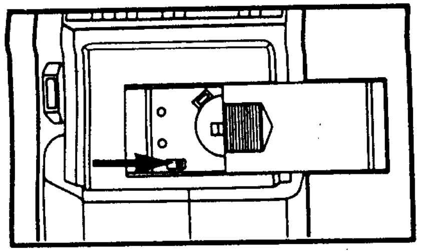


Compatibility between S-VHS and VHS


Blank tape
Recording
Recorder
Playback
Recorded tape
S-VHS cassette
GF-S1000HE
S-VHS recordings
S-VHS recording and playback ☐
Recording in the VHS format only
VHS recording and playback ■
VHS cassette
VHS VCR
VHS recordings

Selecting the S-VHS/VHS mode

1

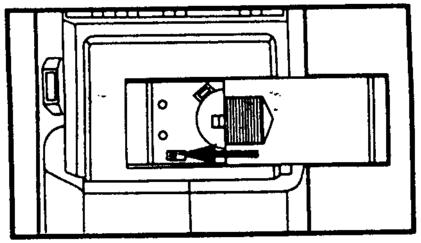


Set the mode select switch to "ON-AUTO". The GF-S1000HE automatically detects the type of cassette so that the appropriate mode is automatically selected.

With a cassette marked **"S-VHS"**: S-VHS mode (The S-VHS mode indicator lights.)

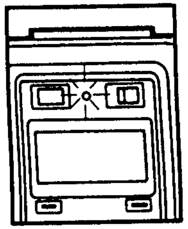
With a cassette marked **"VHS"**: VHS mode

2



Set this switch to "OFF". The VHS mode always remains in effect, regardless of the cassette used.

S-VHS mode indicator



The S-VHS mode indicator remains lit while the GF-S1000HE is in the S-VHS mode. (When the S-VHS mode select switch is set to "ON-AUTO" and an S-VHS cassette is inserted.) It also remains lit when playing back S-VHS programmes recorded on an S-VHS cassette.

Note:

With the switch set to "ON-AUTO", in playback, if regular VHS signals are recorded on an S-VHS cassette, the GF-S1000HE switches to the VHS mode automatically. At the same time, the S-VHS mode indicator goes off.

How to take best advantage of S-VHS pictures

For flexibility, the GF-S1000HE has a pair of 8-pin terminals (IN and OUT), and one S-VHS 4-pin terminal.

The S-VHS signal is separated into Y and C (luminance and chrominance) signals, while the regular video signal is a composite video signal in which the luminance and chrominance signal are mixed.

The 4-pin 🅂 OUT terminal ㊿ is exclusively for the separated Y/C signals.

One of the 8-pin terminals is an input terminal which accepts the regular video signal (and audio) or Y/C signal.

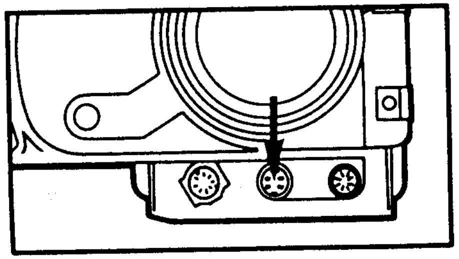
The other 8-pin terminal is an AV OUT terminal which delivers either the separated Y/C signal or the composite video signal depending on the setting of VIDEO OUT switch ㉗.

Using a television with S-VIDEO input

If your television is equipped with an S-VIDEO input (separated Y/C signals) terminal, this is an ideal way to enjoy the best possible S-VHS picture, because no interference occurs between the luminance and chrominance signals.

Connect the 🅂 OUT terminal of the GF-S1000HE to the S-VIDEO IN terminal of your television. To view video cassettes with this setup, set the TV to the AV mode.

🅂 OUT connector



When using the 🅂 OUT connector, use the AV OUT terminal in combination with it. Y/C separated video signals are delivered from the 🅂 OUT terminal and accompanied audio signals from the AV OUT connector. For detailed connection, see page 27.

AUDIO SYSTEM

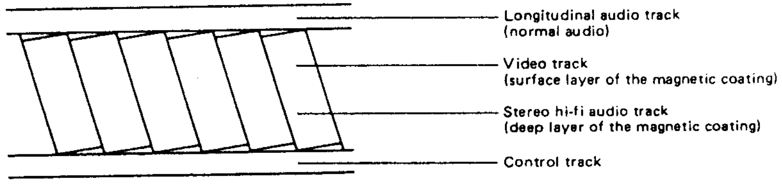
Hi-Fi and normal audio

To provide true hi-fi audio accompaniment to Super VHS entertainment, the GF-S1000HE employs a unique audio recording system. Hi-fi audio signals (2-channel) are recorded deep into the tape's magnetic coating, and the video signal is recorded on top of the audio signals in a shallower layer. At the same time, another audio head records normal audio signals (monaural) onto the usual longitudinal audio track. Since this longitudinal audio track is exactly the same as on non-Hi-Fi VHS tapes, audio signals recorded on tapes with the GF-S1000HE can be played back on other VHS machines, and vice versa.

CAUTION:

- The hi-fi soundtrack recorded with the GF-S1000HE cannot be reproduced with video equipment other than Hi-Fi VHS.
- Tapes recorded with a conventional stereo video recorder produce monaural sound when played back with the GF-S1000HE.

Tape pattern recorded with GF-S1000HE



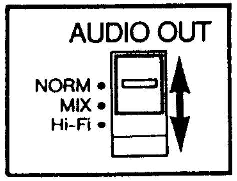
Hi-fi audio recording and reproduction are available only from the hi-fi audio track while the longitudinal audio track provides normal audio.

The hi-fi and normal soundtracks are recorded simultaneously.

The audio recording options are as follows:

Mike	Longitudinal audio track	Hi-Fi audio track	
		L	R
Provided mike	L + R	L	R
Mono mike connected to "L" connector	L	L	No audio
Mono mike connected to "R" connector	R	R	R
Stereo mike connected to "L" & "R" connectors	L + R	L	R

When monitoring audio during playback



Set the AUDIO OUT mode select switch according to the audio track you wish to listen to. (Also effective when monitoring with headphones connected to PHONES jack.)

NORM : To listen to the sound recorded on the longitudinal (normal) audio track.

MIX : To listen to the sound recorded on both Hi-Fi and longitudinal audio tracks (mixed audio).

Hi-Fi : To listen to the sound recorded on the Hi-Fi audio track.

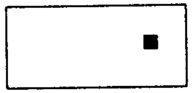
VIEWFINDER AND LCD INDICATIONS

The viewfinder and LCD of the GF-S1000HE provide comprehensive on-screen indications for your reference.

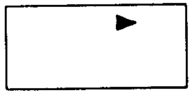
Recorder status indications

Viewfinder | **LCD**

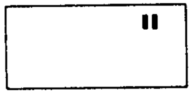
Stop mode



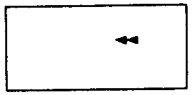
Play mode



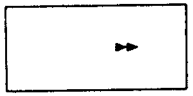
Pause/Still mode



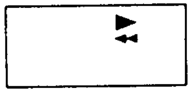
Rewind mode



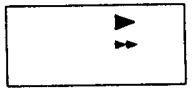
Fast forward mode



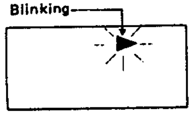
Reverse shuttle search mode



Forward shuttle earch mode



Master Edit Control

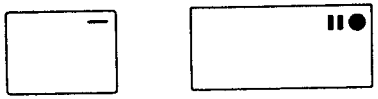


Blinks during dubbing. See page 31

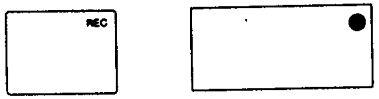
~~Audio dubbing mode~~

Viewfinder | **LCD**

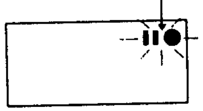
Recording standby mode



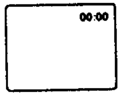
Recording mode



Quick Review mode

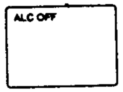


Elapsed recording time

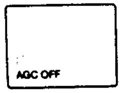


Elapsed recording time is displayed when REC TIME switch is set to ON. Reset when cassette is unloaded or RESET button is pressed. 1:00:00 indicates 1 hour has elapsed.

ALC switch off



AGC switch off

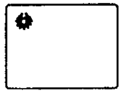


Camera status indications

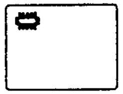
Viewfinder | **LCD**

White balance mode setting

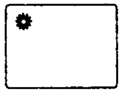
Incandescent lighting



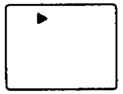
Fluorescent lighting



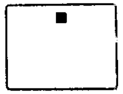
Outdoors



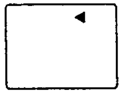
Manual focus aid



Focus behind subject



Correct focus

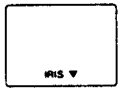


Focus in front of subject

▶: turn focus ring clockwise until ■ appears.
■: indicates aimed-at subject is in focus.
◀: turn focus ring counterclockwise until ■ appears.
- Auto-focus mode is indicated by none of these appearing on the screen.

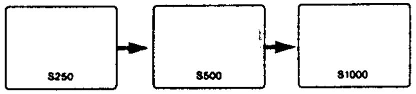
Manual iris mode

Over exposure



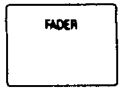
Under exposure

Shutter speed



1/250 sec. 1/500 sec. 1/1000 sec.

Fading mode

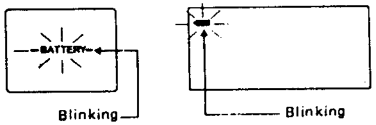


Appears when fader function is reserved.

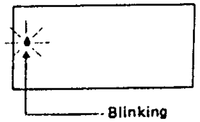
Warnings

Viewfinder | **LCD**

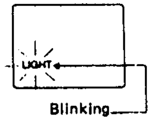
Battery warning



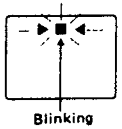
Condensation warning



Low-light warning

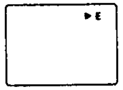


Low-contrast warning (Manual focus)



In the manual-focus mode, if focus-aid indication is difficult because of low contrast, these focus-aid indicators appear simultaneously and blink.

Lithium battery warning



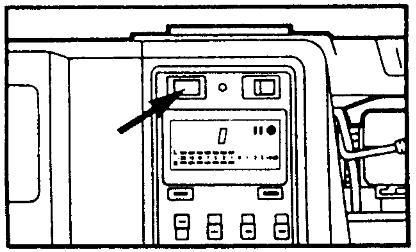
When the battery is not in place or if it is exhausted, no date/time or elapsed time reading will appear.

1

- Set the POWER switch to ON.
- Set the S-VHS mode select switch to ON-AUTO (for automatic detection of S-VHS or VHS tape) or to OFF (for VHS recording, regardless of type of tape used).
- Set the ALC switch to AUTO.
- Insert a video cassette correctly (with its safety tab in place).

Note:
Only S-VHS tapes can be used to make S-VHS recordings.

2

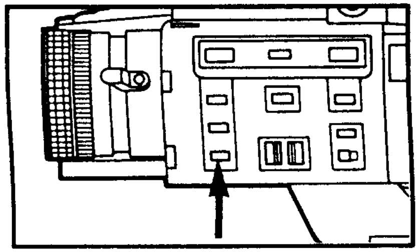


Press the RECORD button. The unit enters the Record Standby mode. (The aimed-at scene will appear on the viewfinder screen.)

Record Standby mode indications (viewfinder)

Check the viewfinder and LCD indications. See pages 15 and 16.

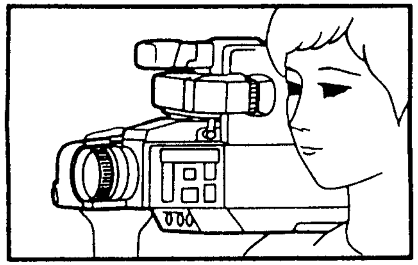
3



Press the FULL AUTO button.

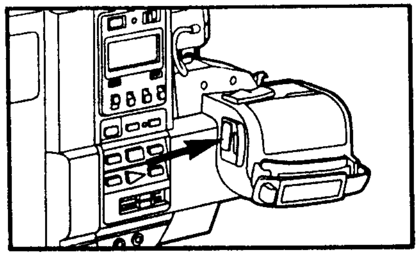
- In the FULL AUTO mode, ✲/▭/✹ and/or ▶ ■ ◀ indications do not appear on the viewfinder screen.

4



Determine the composition by referring to the viewfinder image. For zooming, see page 23.

5

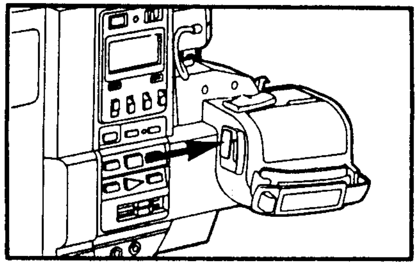


Press the start/stop button.

- This causes REC on the viewfinder screen to appear, showing that recording is actually taking place.

- During recording, the tally lamp blinks continuously.

6

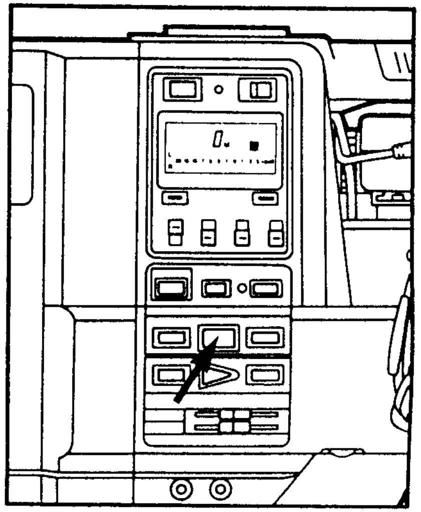


To stop recording temporarily, press the start/stop button once again.

7 To restart recording, press the start/stop button.

- For a long pause, press the POWER switch to OFF to save battery power.
- If the Recording Standby mode continues for longer than about 5 minutes, the unit switches itself off automatically. To restart recording, turn the power on. This makes clean assembled recordings possible even after a long pause.

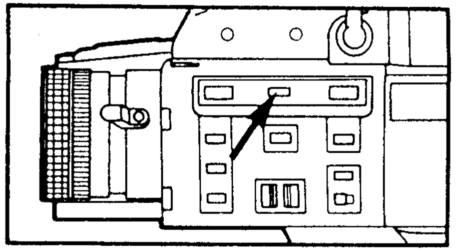
8



To end recording, press the STOP button.

- After making sure that the tape has stopped, press the POWER switch to OFF.

Quick Review function



- If you want to review the end of the last recorded segment for confirmation, press the QUICK REVIEW button from the Record Standby mode, the tape will be rewound for about 2 seconds of programme time and played back automatically for this section, after which it will stop in the Recording Standby mode in readiness for the next shot.

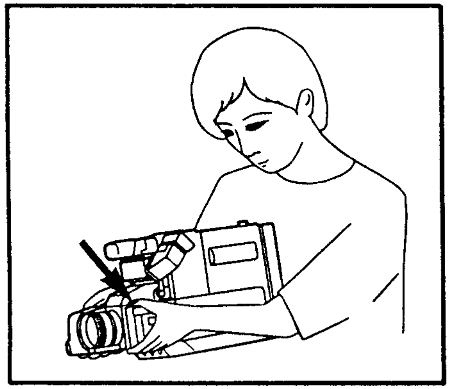
Note:

- Distortion might occur when playback starts. This is normal.

Assemble recording

- Repeating steps 6 and 7 produces assemble recordings. In playback, the picture may be slightly distorted at the point between separate takes. This is not due to any defect of the unit.
- If recording is restarted from the Stop mode, a small portion of the previously recorded segment may be replaced with the new material being recorded, or a blank section may be left between the two recordings. To avoid this, follow the techniques described in "Assemble Recording Technique" on page 20.

Second recording START/STOP button (for low-angle shots)



When you shoot scenes from a low angle, use the second recording START/STOP button for better viewability and securer positioning of the camera.

Rehearsal

If you wish to rehearse shooting angles, compose scenes, etc., without actually recording on the tape, you can perform rehearsal as follows:

(1) If a cassette is already loaded
Press the RECORD button while keeping the STOP button pressed.
(2) If a cassette is not loaded
Just press the RECORD button.

Then, the scene will appear on the viewfinder screen.

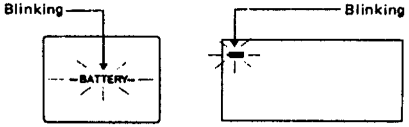
- To disengage the Rehearsal mode, press the STOP button.
- The power save circuit does not function during rehearsal. (For power save function, see page 20.)

Record Standby mode save function

This function is another useful convenience for further saving battery power when intervals between shots are rather long. While in either the Record or Record Standby mode, press the POWER button to OFF, then after composing the shot, press only the POWER button to ON again and the Record or Standby mode is restored automatically.

Warnings

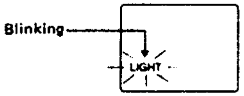
Battery warning



Viewfinder LCD

- When the battery power is coming to an end, a battery warning indication appears both in the viewfinder and the LCD. Replace the battery pack with a fully charged one.
- After these indications appear, the power turns off automatically. In this state, however, setting the POWER switch to ON while holding EJECT button pressed, turns the power on and ejects the cassette.

Low-light warning



- If the blinking "LIGHT" indicator appears on the viewfinder screen, the amount of light is insufficient. Increase the lighting.

POWER SAVE AND TAPE PROTECTION CIRCUIT

- To save power, the GF-S1000HE switches itself off automatically in the following situations:
  (1) When left for longer than 5 minutes in the Stop mode.
  (2) When left for longer than 5 minutes in the Recording Standby (Record-Pause) mode.
- To protect the tape, the GF-S1000HE releases tape tension slightly and switches itself off automatically if left for longer than 5 minutes in the Recording Standby (Record-Pause) mode.
- For the same reason, the GF-S1000HE enters the Stop mode and switches itself off automatically if left for longer than 5 minutes in the Still (Play-Pause) mode.

Battery/AC operation

STOP → POWER OFF
5 minutes

RECORD PAUSE → POWER OFF
5 minutes

PLAY PAUSE (STILL) → STOP → POWER OFF
5 minutes

ASSEMBLE RECORDING TECHNIQUE – 1 (To replace the battery pack during recording)

1 If the battery warning appears in the viewfinder or the LCD while recording, stop recording by setting the POWER switch to OFF, not the STOP button.

2 Replace the battery pack with a charged one.

3 Set the POWER switch to ON.
- The unit will be in the Recording Standby mode.

4 Press the recording start/stop button to start recording.

ASSEMBLE RECORDING TECHNIQUE – 2 (To search for the assemble point with the "Retake" function)

1 Make sure the camera is in the Recording Standby mode. (If not, engage the mode.)

2 Press either SHUTTLE SEARCH button to reach the point where you wish a new recording to start. When the SHUTTLE SEARCH button is released, the camera will enter the Recording Standby mode again.

3 Press the start/stop button to start recording.

ASSEMBLE RECORDING TECHNIQUE – 3 (To record onto a partially recorded tape)

1 Play back the tape to a point where you wish a new recording to start.
- Use the SHUTTLE SEARCH button for faster location.

2 Press the PAUSE/STILL button at the located point.
- The unit will enter the Still mode.

3 Press the RECORD button.
- The unit will enter the Recording Standby mode.

4 Press the recording start/stop button to start recording.

ADVANCED VIDEOGRAPHY TECHNIQUES

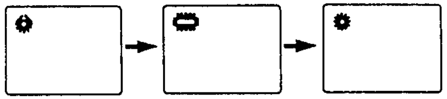
White Balance Adjustment

The GF-S1000HE's Automatic Colour Tracking system senses the colour temperature of the ambient lighting for automatic white balance adjustment. However, precise colour temperature adjustment is not possible under the following conditions.

- The light falling on the object being shot and the light around the camera are of different colour temperatures.
- Either the object or the camera is in an area covered by a shadow.

In these cases, use the GF-S1000HE's built-in filters for white balance adjustment.

- Press the WHITE BAL button until the required symbol appears on the viewfinder.
  - ✺ : Under light of halogen or tungsten lamps.
  - ⊖: Under light of fluorescent lamp.
  - ☀ : Under sunlight (natural light).



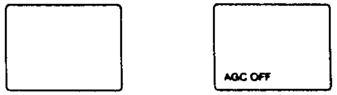
- To switch to the automatic adjustment, press the WHITE BAL button until the indication disappears, or press the FULL AUTO button.

AGC

The GF-S1000HE incorporates an AGC (Automatic Gain Control) circuit that electronically activates increased sensitivity in low-light situations.

- The AGC is set to AUTO in the FULL AUTO mode. (No indication on the viewfinder screen.)
- When you do not need the AGC, press the AGC button. The "AGC OFF" will appear on the viewfinder screen.

When you wish to capture the natural change in normal outdoor lighting, switch off the AGC, even when shooting under low illumination, otherwise naturalness will not be maintained.



AGC AUTO
(No indication)

AGC OFF

Iris Control

Iris is automatically adjusted in the FULL AUTO mode. However, you can adjust it manually from its current setting.

(1) Press either IRIS button ("+" or "–"). The iris indication appears on the viewfinder screen.

(2) Select the required iris level.
IRIS "+" button: Each time it is pressed, the aperture opens by one f-stop (up to 8 f-stops).
IRIS "–" button: Each time it is pressed, the aperture closes by one f-stop (up to 7-stops).

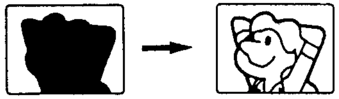
Over exposure Correct Under exposure

- The viewfinder indication does not show the f-stops, it indicates only the over- or under-exposure status.
- When you simply wish to compensate for strong backlighting, see the next section, "Backlight compensation".

Backlight Compensation

When excessive lighting is located in back of the subject, correct exposure may not be obtainable. To compensate for this, use BLC.

- Press the BLC button. While it is being pressed, the iris is 1 – 2 f-stops wider than that adjusted automatically.

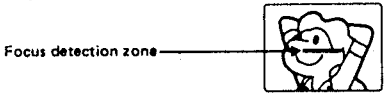


Without BLC With BLC

Focusing

Auto focusing

The GF-S1000HE incorporates an auto-focus mechanism which enables automatic focusing onto most subjects.



- A narrow area in the centre and extending horizontally for about 1/2 the width of the screen is used to detect focus. (No actual indication provided on the screen.)

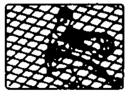
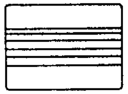
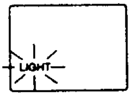
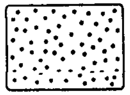
Simply press the FULL AUTO button.

- If the GF-S1000HE is in the Manual Focus mode, press the FOCUS button to engage the Auto Focus mode.

CAUTION

- Do not touch the focus ring while the auto-focus mechanism is in operation.
- Except while actually shooting, keep the lens capped. Whenever light enters the lens, the auto-focus mechanism functions and consumes power.
- Do not attempt to use auto-focus when a teleconvension or wide-angle conversion lens is attached. This could lead to damaging the auto-focus mechanism. Engage the manual focus mode with add-on lenses.

Correct focus may not be obtained in the following situations. In such cases manual focusing should be performed to obtain proper focus.

	Two subjects at different distances overlap in the same scene.
 	Horizontal lines only.
	Low illumination where the underexposure indicator appears on the viewfinder screen.
	Minute patterns or identical patterns that are regularly repeated.

Manual focusing

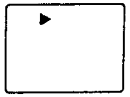
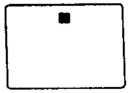
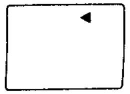
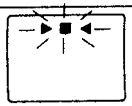
When you select the Manual Focus mode, proceed as follows.

1. Press the FOCUS button to release the Auto Focus mode.
   The focus aid indication(s) appears on the viewfinder screen.
2. Zoom in on a subject by pressing the "T" button of the power zoom buttons.
3. Turn the focus ring to focus onto the subject. This time, refer to the focus aid indication chart on the right.
4. Determine the composition by pressing the "W" button.

- To release the Manual Focus mode (to engage the Auto Focus mode) press the FOCUS button or FULL AUTO button.
- When you use the Manual Focus mode, be sure to focus the lens in the maximum telephoto position. If you focus in on a certain subject in the wide-angle position, sharply-focused images cannot be obtained when zoomed up because the depth of field is reduced at longer focal length.

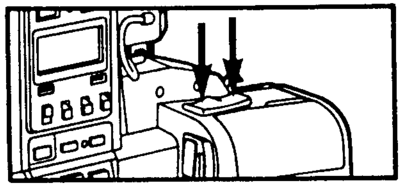
FOCUS INDICATORS

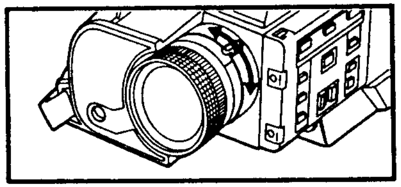
The focus indicators on the viewfinder screen function in the Manual Focus mode.

Condition	Indication	Corrective operation
Focus point behind the subject		Turn the focus ring clockwise until the centre square lights.
Correct focus		Keep the focus ring in the same position.
Focus point in front of the subject		Turn the focus ring counterclockwise until the centre square lights.
Indication not possible because of low contrast		Estimate the subject distance and set the focus ring referring to the distance scale on it.

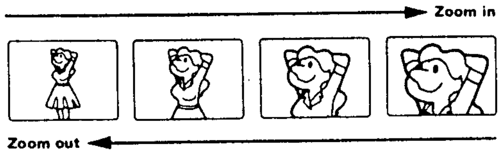
Zooming

When the focal length of the lens is varied by turning the zoom ring, the image appears to come nearer to or retreat from the viewer.





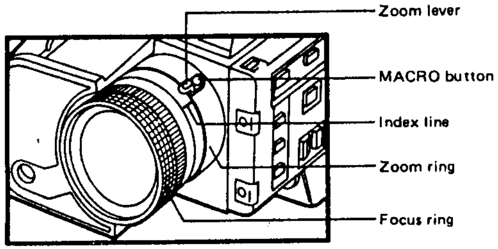
Power zooming
Press "T" for zooming in and "W" for zooming out. Two zooming speeds are available. For slow-speed zooming, press lightly. For regular-speed zooming, press firmly.



Manual zooming
Rotate the zoom lever downwards for zooming in and upwards for zooming out.

Macro Shot

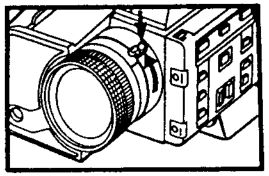
Normally, focusing is possible only for subjects that are more than 1.1 mm away from the camera. By setting the lens to the Macro mode, it is possible to manually focus in on any subject located inside that limit, right up to the front of the lens. The MACRO and ZOOM ranges combined give continuous shooting ability from close-up to infinity.



- First engage the manual focus mode.

Engage MACRO

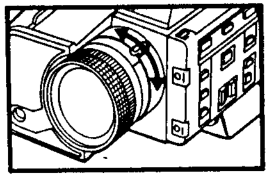
1



While pressing in the macro button, turn the zoom ring in the direction of the arrow until the numer "9" on the zoom *ring passes the index line.*

Focus

2

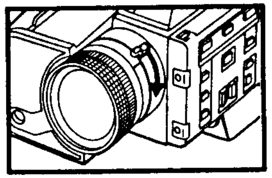


Focus by turning the zoom ring slowly.

- Use the zoom ring to focus in the MACRO range.
- *Turning the zoom ring will slightly alter the angle of view of the lens.*
- The zoom and auto-focus mechanisms do not function during macro shooting.

Release MACRO

3



To release the Macro mode, turn the zoom ring in the direction of the arrow until the number "9" passes the index line.

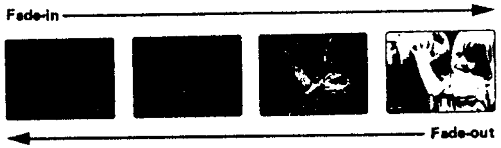
Fade-in/Fade-out

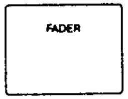
The GF-S1000HE is equipped with an automatic fade machanism for allowing smooth fade-in and fade-out with a black-coloured blank screen. Audio also fades in sync with video.

Automatic fade-in

1 Determine the composition in the Record Standby mode and press the FADER button to reserve the Fade-in mode.

2 Press the recording start/stop button. The screen will quickly become black and recording begins. When the recording start/stop button is released, fade-in will start. It will be completed in about 5 seconds. If the recording start/stop button is not released when pressed, the black picture will remain on the screen and be recorded.





FADER is displayed in the viewfinder when fading is reserved, and continues to be displayed until fading in or out is completed.

Automatic fade-out

1 Start shooting as usual.

2 Press the FADER button to reserve the fade-out mode.

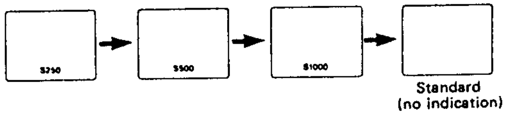
3 Press the recording start/stop button. Fade-out will start and be completed in about 5 seconds. When completed, Record Standby mode is entered. If the recording start/stop button is not released when pressed, the final black picture remains on the screen and continues to be recorded, until the button is released.

High-speed Electronic Shutter

The GF-S1000HE has a high-speed electronic shutter that allows to record the quick movements of the subject with superior sharpness and clarity. When playing back these quick-motion recordings made in the High-speed Shutter mode, sharp, clear stills or show-motion playback will be obtained.

1 Press the SHUTTER SPEED button to switch to the High-speed Shutter mode. This can be operated in any mode, and continues until it is switched back to the Standard-Speed mode.

2 Select the shutter speed among 1/250, 1/500, 1/1000-second, and Standard (1/50) by pressing the SHUTTER SPEED button. Each time it is pressed, the shutter speed changes in the following order:

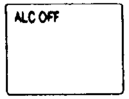


- The High-speed Shutter mode requires slightly more subject illumination than the Standard-Speed mode. Therefore, the low-light warning may appear in the viewfinder. If so, it is recommended to switch back to the Standard-Speed mode or add more light.
- Pressing the FULL AUTO button also restores the shutter speed to the standard level.
- Picture colour may be adversely affected in the High-speed Shutter mode when the subject is lit by alternating discharge-type light sources such as fluorescent or mercury-vapour lights.

Hi-Fi Recording Level Control

The GF-S1000HE features the Hi-Fi VHS system for quality audio recording. The recording level is automatically adjusted in the ALC (Automatic Level Control) mode. When you desire to adjust the level manually, proceed as follows.

1



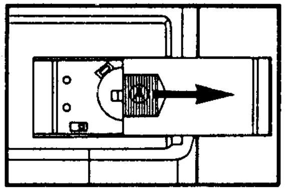
Set the ALC switch to OFF. "ALC OFF" appears on the viewfinder.

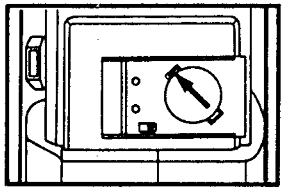
2 Slide the Hi-Fi AUDIO REC LEVEL controls to adjust to your preferred level while referring to the Hi-Fi audio level indicator.

- Be sure to set the ALC switch back to ON for automatic ALC adjustment.

RECORDING THE DATE/TIME

Warning on lithium battery
- Dispose of used battery promptly.
- Keep away from children.
- Do not disassemble and do not dispose of in fire.





Battery insertion

This battery powers the date/time function.

1. Slide the cover off the Backup battery compartment on the bottom of the VideoMovie by pressing lightly on the section labelled Ⓐ in the diagram.
2. Insert the provided lithium battery with the plus (+) side up until it locks in place.
3. Slide the cover on until it clicks.

Notes:
- Switch off the unit's power before inserting the battery.
- When the battery is inserted, the clock will begin functioning.

Battery replacement

The battery lasts for about one year. When the lithium battery warning (▶E) appears in the viewfinder, this battery needs to be replaced. Obtain a new CR 2025 lithium battery and proceed as follows.

1. Remove the battery by pressing the lever in the direction of the arrow.
2. Insert the new CR 2025 with the plus (+) side up until it locks in place.
3. Slide the cover back until it clicks.

Notes:
- Switch off the unit's power before removing the old battery.
- Replace battery with Matsushita-type CR 2025 only. Use of another battery may present risk of fire and explosion.

Date/time setting

Before adjusting the date and time for the first time or after replacing the batteries, '1.1.88' appears and starts blinking in the viewfinder, indicating the clock needs to be set.

① Press the RECORD button while keeping the STOP button pressed to engage the Rehearsal mode. '1.1.88' will appear and starts blinking in the viewfinder.
② Press the SELECT button – the year blinks.
③ Press the SET button to choose the correct number.
④ Press the SELECT button to select the next item to change, with the selected item changing in the following sequence:

→ Year → Month → Day → Hour → Minute → Finish Adjustment

⑤ Repeat steps ② and ③ to set all items. After the minute setting has been performed, press the SELECT button, and items will cease blinking. For the Auto-date-record mode, the auto-date-record reserve indicator will appear.

Date/time recording

The date, time, or date and time can be displayed and recorded according to the selected mode. Press the DISPLAY SELECT button to cycle through the modes in the following order:

→ Auto-date-record reserve → Date display → Date/time display → Time display

- When the auto-date-record function is selected, "–.–.–" appears in the viewfinder, until recording begins. As long as this function is chosen, the date will be automatically displayed and recorded for about 5 seconds following the first operation of the recording start/stop button after the power is turned on.
- Auto-date-record reserve indication will cease to be displayed 5 seconds after the date is recorded if the REC TIME ON/OFF button is set to OFF, unless power is reapplied.

Date/time recording indications

Auto date record		Date display	Date/time display	Time display
–.–.–	31.12.88	31.12.88	31.12.88 14:30	14:30
Auto-date-record reserved	Auto-date-record executed			

PLAYBACK

The GF-S1000HE permits playback of recorded S-VHS and VHS video cassettes.
For connections refer to pages 27 and 28.

Precaution:
- With a regular television receiver, set the antenna select switch of the RF-V3E RF unit to VIDEO and the TV receiver's channel selector to your video channel (32 – 40).

1. Connect a power supply unit. (Battery or AC operation: see page 10.)
2. Press the POWER switch to ON.
3. Insert a pre-recorded S-VHS or VHS cassette.
4. Press the PLAY button. Playback will start.

Audio monitoring

When monitoring recorded sound, select the audio track using the AUDIO OUT select switch as follows;

NORM	Plays back the longitudinal (normal) audio track only.
MIX	Plays back both the longitudinal and Hi-Fi audio tracks.
Hi-Fi	Plays back the Hi-Fi audio track only.

- When playing 'back a tape containing the same soundtrack on both hi-fi and normal audio tracks, a slight time lag is sensed between the two soundtracks, probably with some distortion, in the MIX position. Therefore, in such a case, use the NORM or Hi-Fi position.

Shuttle Search

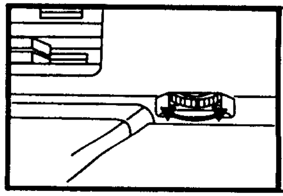
1. **Fast-speed playback in the forward direction**
   Press the FF button in the Play mode. Playback will be speeded up to 9 times normal speed while the button is being pressed.
2. **Fast-speed reverse playback**
   Press the REW button in the Play mode. The tape will be played back in the reverse direction at 9 times normal speed while the button is being pressed.

Note:
- Noise may appear on the screen during Shuttle Search and still playback. This is not due to any defect of the unit.

Still playback

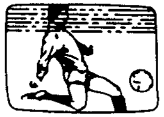
Press the PAUSE/STILL button during playback. The picture will stop on the screen.

- After about 5 minutes of still playback, the unit enters the Stop mode automatically for tape protection and switches itself off.
- To release the Pause/Still mode, press the PLAY button.
- In the Pause/Still mode, each time the PAUSE/STILL button is pressed, the frame will advance.



Tracking adjustment

If noise bars appear on the screen, or Hi-Fi audio is distorted, adjust the TRACKING control. Turn it slowly in either direction to minimise noise. After playing a particular tape, return the TRACKING control to the centre position.



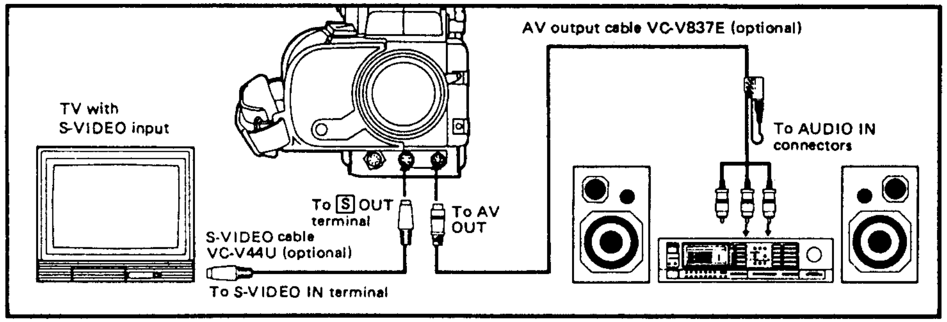
CONNECTIONS FOR PLAYBACK

①Connection to a television equipped with S-VIDEO input connector

For this situation, use the S-VIDEO cable and the AV output cable.

To a stereo system

- With this set-up, monitoring while camera shooting is also possible.



Procedure

- Connect the S OUT terminal of the GF-S1000HE to the S-VIDEO IN terminal of the S-VIDEO-equipped TV receiver.
- Connect the AV OUT of the GF-S1000HE either to the TV receiver's AUDIO IN connectors or to the AUX IN or TAPE MONITOR terminals of an amplifier, or
- Connect the AV OUT of the GF-S1000HE to the A/V socket of the S-VIDEO equipped TV receiver.
- Set the VIDEO OUT select switch to "Y/C".

Application

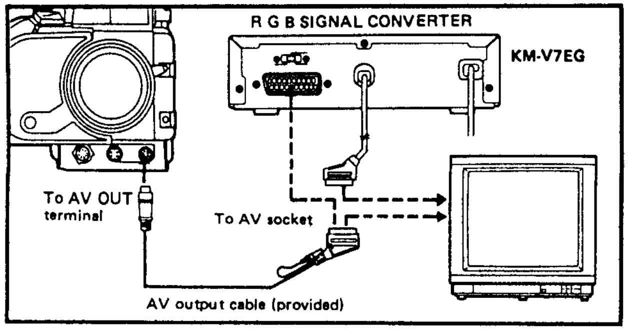
- With this setup, you can enjoy prerecorded S-VHS Hi-Fi tapes in stereo while viewing them on an S-VIDEO-equipped TV receiver.
- If the TV receiver is not equipped with a 4-pin S-VIDEO connector, this stereo-system connection is not possible.

CAUTION:

- The GF-S1000HE has a dynamic range of more than 80 dB in the hi-fi audio mode. It is recommended that you check the maximum level if you are going to listen to the hi-fi audio signals through a stereo amplifier. A sudden surge in speaker input may cause speaker damage.
- Some speakers and televisions are specially shielded to prevent television interference. If neither are shielded, do not place the speakers adjacent to the TV set, otherwise the video playback picture will have interference.

②Connection to a television equipped with audio/video input connectors

- Simply connect the AV OUT terminal of the GF-S1000HE either directly to the VIDEO and AUDIO IN connectors of the television using the provided AV output cable, or to a KM-V7EG RGB signal converter (optional) and the RGB signal converter to the RGB-compatible AV IN connector of the television.
- Set the VIDEO OUT select switch as required: either to "CVBS" (with the direct TV connection) or to "Y/C" (with the RGB converter connection).



Note:

③Connection to a television not equipped with audio/video input connectors

For this situation, use the RF-V3E RF unit.

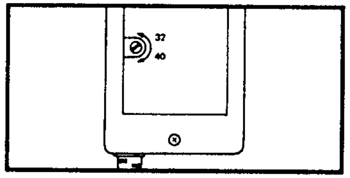
1 Remove the aerial cable from the TV receiver.

2 Connect the aerial cable to the ANTENNA IN terminal of the RF unit.

3 Connect the RF OUT terminal of the RF unit to the aerial terminal of the TV receiver using the provided aerial cable.

4 Connect the VIDEO/AUDIO INPUT cable of the RF unit to the AV OUT connector of the GF-S1000HE.

5 Adjust the RF converter output channel according to your VIDEO CHANNEL.

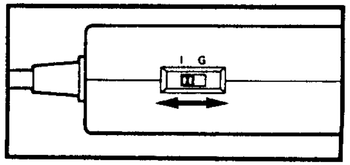


●RF converter channel adjustment screw

The RF unit permits playback of video and audio recordings through a TV receiver. The signals from the RF unit are viewed through a vacant channel not used for broadcasting in your area. The output frequency of the RF converter has been set to correspond to a broadcast on UHF channel 36. To view playback pictures from the GF-S1000HE with your TV receiver, tune its specified AV channel to UHF channel 36. If channel 36 is employed for broadcasting in your area, readjust the RF converter output channel to one of the vacant channels between 32 and 40. To make this adjustment, remove the small cap on the back of the RF unit and turn the adjustment screw with a screwdriver to tune in a vacant channel.

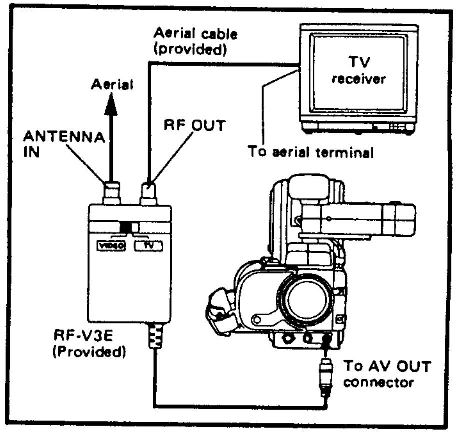
●TV system select switch (I/G)

When you use a TV receiver built to the British PAL standard, shift the system select switch to "I".



PRECAUTIONS FOR RF-V3E (Provided)

- For exclusive use with the VideoMovie.
- Do not disassemble or remodel the RF-V3E.
- Do not expose it to strong shocks.
- Unplug the connected equipment during



●RF converter channel adjusting procedure

1. Set the AV channel of the TV receiver to one of the vacant channels.
2. Set the VIDEO OUT select switch to "CVBS".
3. Power the GF-S1000HE.
4. Put the GF-S1000HE in the Rehearsal mode (see page 19).
5. Set the VIDEO/TV switch of the RF unit to VIDEO.
6. While monitoring the output signal on the TV screen, turn the RF converter channel adjustment screw so that the monitored picture comes in most clearly.

CAUTION:

To view the GF-S1000HE recordings with a TV receiver, use a TV receiver having a specified AV channel and employ this AV channel as your VIDEO CHANNEL, otherwise playback may be disturbed with vibrating or bending pictures. AV channels refer to channels exclusively for video playback; because AFC circuits are applied to these channels, the playback pictures can be stabilised. Recent TV receivers have one or more AV channels.

OPERATION

Viewing video cassettes being played back with the GF-S1000HE

To view video cassettes or to monitor the recording, set the VIDEO/TV switch of the RF unit to VIDEO and the TV channel selector to the channel corresponding to the RF output channel.

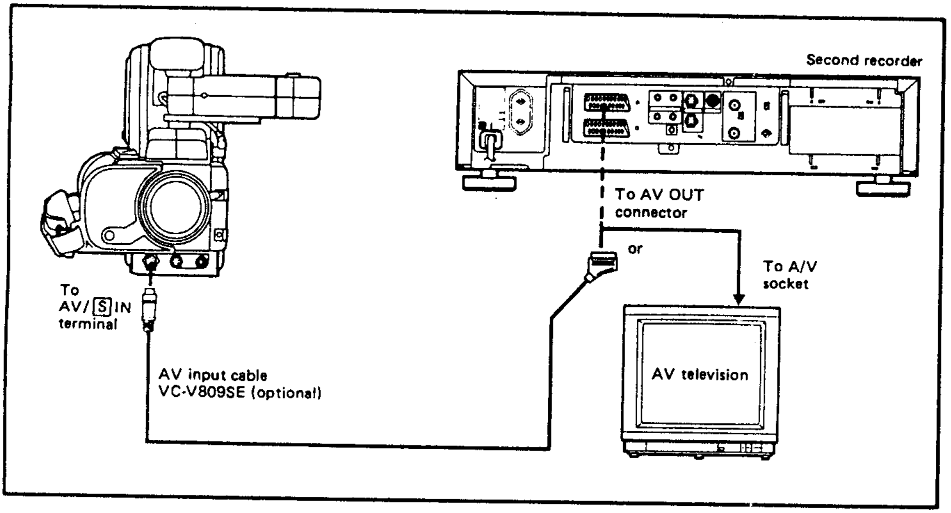
Viewing television programmes

Set the VIDEO/TV switch to TV, and the TV receiver

TV PROGRAMME RECORDING

Connection

Connect the AV/ [S] IN terminal of the GF-S1000HE to the AUDIO and VIDEO OUT connectors of an AV television or a VCR using the optional VC-V809SE AV input cable.



Operation

- The external source mode is automatically engaged.
- Tune the AV television and video recorder to a desired channel and put the GF-S1000HE in the Recording Standby mode by pressing the RECORD button and then the PLAY button.
- Viewfinder monitoring is possible (no mode indication appears).

USING THE GF-S1000HE AS AN AUDIO DECK

Audio-only recording

You can record audio only (without recording any video signal) on the normal and hi-fi audio tracks. This means you can record a continuous 4-hour FM programme onto a single cassette (VHS mode with E-240).

- Connect an audio source (such as an FM tuner) to the AV/ [S] IN terminal using the optional VC-V83U AV input cable.
- DO NOT connect any video equipment to the GF-S1000HE.

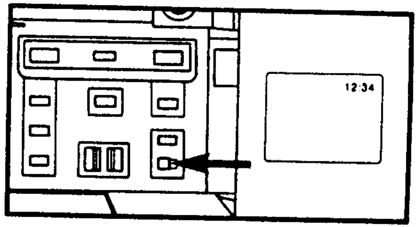
ELAPSED TIME DISPLAY/ COUNTER MEMORY FUNCTION

For easy reference to remaining tape time and quick searching for a specific tape position, the GF-S1000HE has the following conveniences.

Elapsed time display

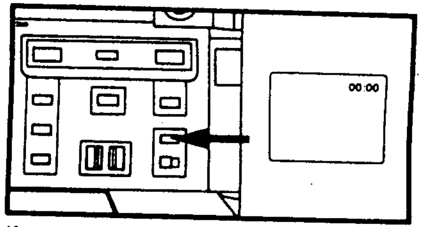
The accumulated recording time (elapsed time) can be displayed on the viewfinder.

1



Set the REC TIME ON/OFF switch to ON. The recording time is displayed on the viewfinder screen.

2



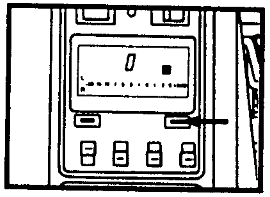
If you wish to reset it to "00:00", press the REC TIME RESET button.

Notes:
- When you wish to disengage the Elapsed Time Display mode, set the REC TIME ON/OFF switch to OFF.
- Up to 9 hours 59 minutes 59 seconds can be displayed. ("Hour" display appears when 1 hour has elapsed.)
- Engaging the Stop mode also resets the display to "00:00".
- This convenience functions only when camera shooting is performed.

Counter Memory Function

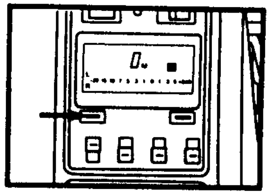
The GF-S1000HE incorporates a counter memory mechanism which facilitates locating specific tape segments.

1



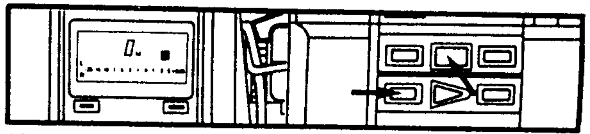
Press the RESET button to reset the counter to "0".

2



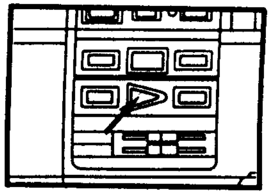
Press the MEMORY button. The "M" mark will appear.

3



After recording or playback, press the STOP button, then the REW button. The tape will automatically stop at the counter reading of around "0".

4



Press the PLAY button to start playback.

Notes:
- The counter memory function is effective in the Fast Forward mode as well.
- To cancel the memory function, press the MEMORY button. The "M" mark will disappear.
- When the power supply unit is disconnected, all indications on the counter display disappear and the counter memory function is cancelled.

EDITING TECHNIQUES

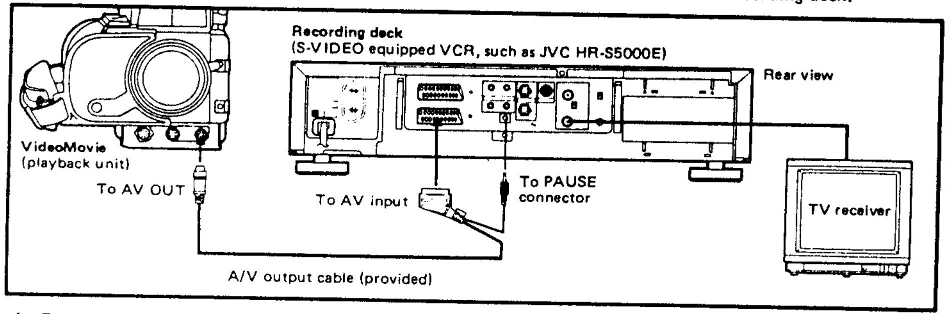
① Master Edit Control system (Assemble editing) (When using a JVC VCR equipped with a Remote Pause terminal)

This function is available only when using a **designated** JVC VCR equipped with a Remote Pause terminal. The Master Edit Control system allows control over the VCR via the GF-S1000HE's operation, resulting in quality assemble editing without transit-point lags or distortion.

- This function is also available using a JVC VCR equipped with a 10-pin camera connector with the VC-V810U conversion cable.

Preparation

- Connect the GF-S1000HE and the recording deck according to the diagram below.
- Set the VIDEO OUT switch to Y/C or CVBS. (See pages 27 or 28.)
- Turn on the power of both the GF-S1000HE and recording deck.
- Correctly insert the appropriate cassette into both the GF-S1000HE and the recording deck.


Recording deck
(S-VIDEO equipped VCR, such as JVC HR-S5000E)
Rear view
VideoMovie
(playback unit)
To AV OUT
To AV input
To PAUSE connector
TV receiver
A/V output cable (provided)

1 Engage the recording deck's Record-Pause mode. (At this time, the tape in the deck winds backward 1.3 seconds.)

2 Set the DUB MODE switch of the GF-S1000HE to ON.

3 Engage the GF-S1000HE's Play mode to locate the edit-out point on the tape. When the point is reached, press PAUSE/STILL.

4 Press RESET of the GF-S1000HE, then press MEMORY. "0M" will appear on the LCD panel.

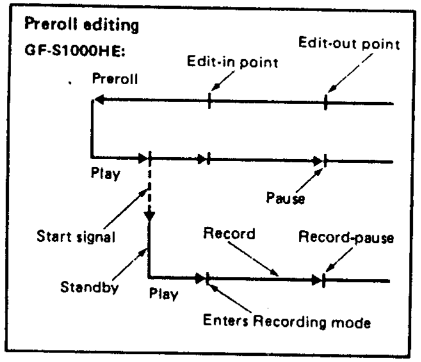
5 Press REW/SHUTTLE SEARCH to locate the edit-in point. When reached, engage the Pause mode.

Note:
There are some VCRs which are not compatible with Master Edit Control. For these units use the VCR's pause control to perform edit-in or edit-out functions.

6 Press EDIT START of the GF-S1000HE to start editing.

- At this time, the GF-S1000HE and recording deck carry out the following procedure automatically.
  1) The GF-S1000HE prerolls the tape for 5 seconds then starts playback to stabilise the tape run.
  2) After the GF-S1000HE plays back for 3.7 seconds, it sends a command signal to the recording deck. Then the deck starts playback together with the GF-S1000HE for 1.3 seconds.
  3) When the GF-S1000HE's tape reaches the edit-in point, the deck starts recording in synchronization with it.

Preroll editing


GF-S1000HE:
Edit-in point
Edit-out point
Preroll
Play
Pause
Start signal
Record
Record-pause
Standby
Play
Enters Recording mode

7 When the GF-S1000HE's tape reaches the edit-out point (counter reading of "0"), the GF-S1000HE enters the Still mode and the recording deck enters in the Record-Pause mode automatically.

- Repeat above steps for complete tape editings.

② Insert Editing

Insert editing means recording a new scene into a section of prerecorded tape so that a part of the original recording can be replaced with a new sequence without excessive picture distortion at the edit-in and edit-out points. In the Insert Edit mode the hi-fi audio soundtrack is replaced with new audio material, while the original audio on the normal audio track remains unchanged.

Preparation

- Connect the GF-S1000HE and the video sources according to the diagrams below.
- Turn on the power of the GF-S1000HE and connected components.
- Correctly insert the appropriate cassette into the GF-S1000HE.
- When inserting scenes via camera shooting (for inserting titles, etc.), do not connect a cable to the AV/[S]IN terminal.

1 Locate the desired edit-out point on the VideoMovie's tape and press PAUSE/STILL.

2 Press RESET to obtain a "0" reading, then press MEMORY to obtain an "M" indication on the LCD.

3 Press REW/SHUTTLE SEARCH to rewind the tape a little beyond the beginning of the scene you wish to insert.

4 Press PAUSE/STILL exactly at the beginning of the scene you wish to insert.

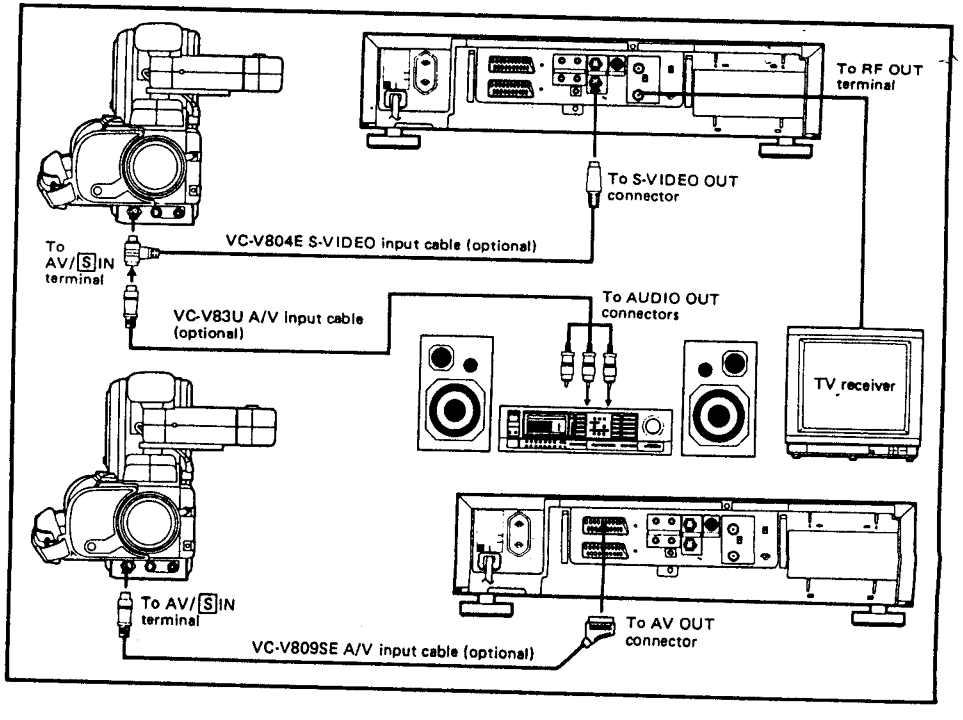
5 While holding INSERT pressed, press PAUSE/STILL. The INSERT indicator lights and the VideoMovie enters the Insert Edit mode with the scene to be inserted appearing on the screen for monitoring.

6 Press PLAY to insert the new sequence. It is recommended to press PLAY only after the picture has become stable.

7 When the counter reading of "0" is reached, insert editing stops automatically and the VideoMovie enters the Play mode.

Note:

- For inserting (replacing) the normal sound only, see "④ Audio Dubbing" on page 34.


To RF OUT terminal
To S-VIDEO OUT connector
To AV/[S]IN terminal
VC-V804E S-VIDEO input cable (optional)
To AUDIO OUT connectors
VC-V83U A/V input cable (optional)
TV receiver
To AV/[S]IN terminal
To AV OUT connector
VC-V809SE A/V input cable (optional)

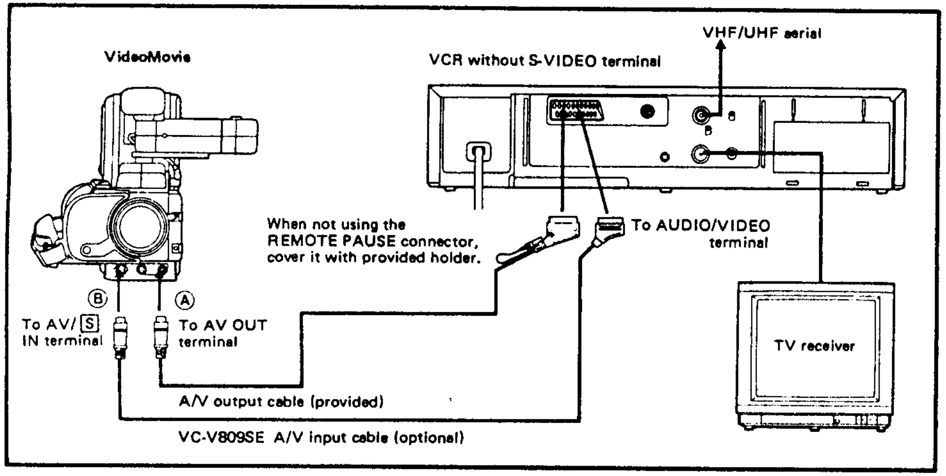
(3) Tape Dubbing

In order to simply perform dubbing of the entire tape, proceed as follows.

Ⓐ *Dubbing onto a second recorder*

Preparation

- Make connections according to the diagram below.
- Turn on all components' power.
- Set the VIDEO OUT select switch to "CVBS".
- Correctly insert the appropriate cassette.
- Set the DUB MODE switch to ON.


VideoMovie
VCR without S-VIDEO terminal
VHF/UHF aerial
When not using the REMOTE PAUSE connector, cover it with provided holder.
To AUDIO/VIDEO terminal
Ⓑ
Ⓐ
To AV/ S IN terminal
To AV OUT terminal
TV receiver
A/V output cable (provided)
VC-V809SE A/V input cable (optional)

1 Engage the connected recorder's Record-Pause mode, and press the GF-S1000HE's PLAY and PAUSE/STILL buttons together to engage the Pause mode.

2 Press the GF-S1000HE's PLAY button and press the recorder's PLAY button to strat dubbing. (The GF-S1000HE starts playback; the recorder starts recording.)

3 To edit out unwanted material, engage the recorder's Record-Pause mode.

- If using with a JVC VCR equipped with a remote pause terminal, perform as follows;
  1) Make connections following the diagram on page 31.
  2) Engage the connected recorder's Record-Pause mode.
  3) Press the EDIT START button of the GF-S1000HE. The deck's recording begins in synchronization with the GF-S1000HE's playback start.

Ⓑ Dubbing from a VCR (without S-VIDEO terminal)

Preparation

- Make connections according to the diagram above.
- Turn on all components' power.
- Correctly insert the appropriate cassette.
- Set DUB MODE to OFF.

1 Engage the connected recorder's Still mode and press the GF-S1000HE's RECORD button to engage the Record Standby mode.

2 Press the GF-S1000HE's PLAY button, and press the recorder's PLAY button simultaneously to start dubbing. (The recorder starts playback, and the GF-S1000HE starts recording.

3 To edit out unwanted material, press the PAUSE/STILL button of the GF-S1000HE.

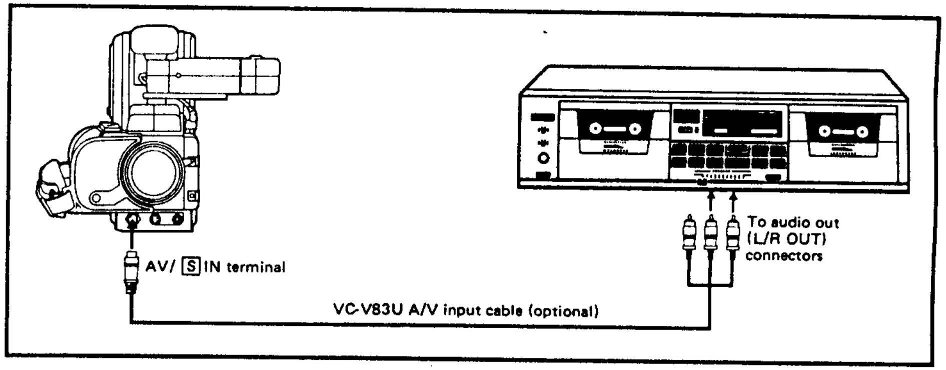
---

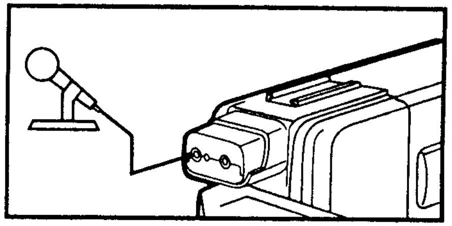
(4) Audio Dubbing

Audio dubbing means recording a new soundtrack on a pre-recorded tape, i.e., replacing the original sound with new audio material. Audio dubbing is applicable only to the longitudinal audio track (normal audio). Audio dubbing on the Hi-Fi audio track cannot be performed.

Preparations

- Correctly insert the tape you wish to audio dub.
- Connect the mike(s) or an audio component as shown below.


AV/ S IN terminal
To audio out (L/R OUT) connectors
VC-V83U A/V input cable (optional)



Notes

- Tapes with their safety tabs removed cannot be audio dubbed. Reseal the safety tab slot to perform the dubbing.
- If whistling or howling is heard during audio dubbing, reduce the TV volume or move the mike(s) farther away from the TV.
- When audio dubbing with the VideoMovie, only the longitudinal audio track (normal audio) can be replaced. The hi-fi audio track cannot be dubbed.
- When dubbing from an audio component ...
  Connect the audio component's audio out connectors to the VideoMovie's AV/ S IN terminal as shown above.
- When dubbing from mikes ...
  Connect mikes to the VideoMovie as shown above. At this time, do not connect a cable to the AV/ S IN terminal.

1 Press PLAY to start playback of the tape.

2 Press REW/SHUTTLE SEARCH and FF/SHUTTLE SEARCH to locate more quickly the place on the tape you want audio dubbing to begin.

3 Press PAUSE/STILL at the exact beginning point for audio dubbing.

4 While pressing AUDIO DUB, press PAUSE/STILL to enter the Audio Dub Standby mode.

5 When you are ready with the new audio material, press PLAY to begin audio dubbing.

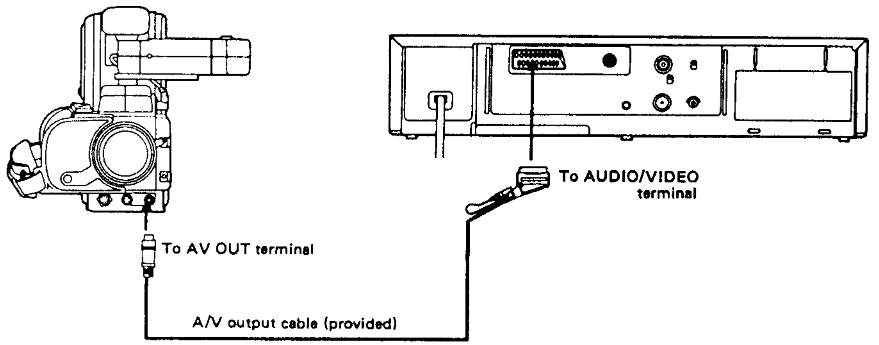
6 To stop audio dubbing, press PAUSE/STILL to engage the Audio Dub Pause mode, or press STOP.

USING WITH ANOTHER RECORDER

When the GF-S1000HE is used in combination with another independent video recorder (either table-top or portable type), the recording can be made with the other recorder. Furthermore, if a cassette is loaded in the GF-S1000HE, the same recording can be made on two different cassettes simultaneously.

Using a recorder not equipped with a remote pause terminal

(1) Make connections following the diagram below.
(2) Set the VIDEO OUT switch to Y/C or CVBS. (See page 27.)
(3) Load the appropriate cassette into both the connected recorder and the GF-S1000HE.
(4) Engage the GF-S1000HE's Record Standby mode. The camera output signal is now available via the A/V output cable.
(5) Engage the connected recorder's Record mode, and press the Start/Stop button of the GF-S1000HE. Recording will start.

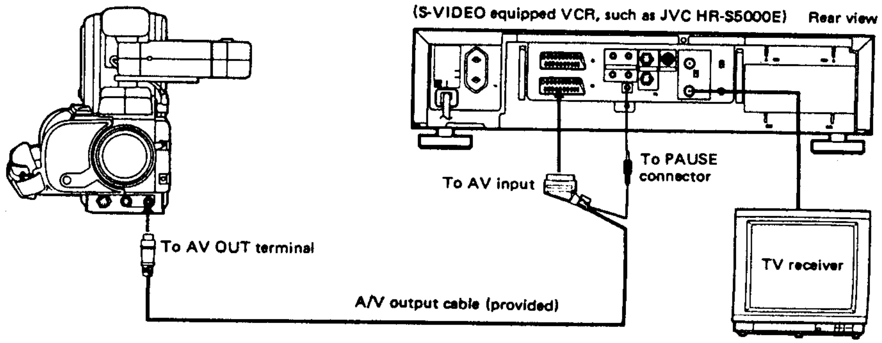


Using a recorder equipped with a remote pause terminal or with a 10-pin camera connector

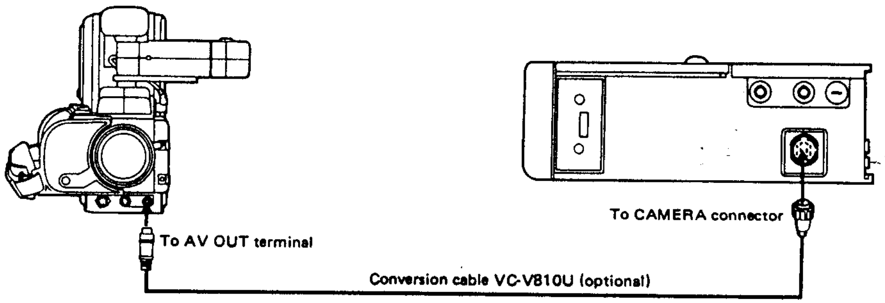
(1) Make connections following the diagrams on the next page.
(2) Set the VIDEO OUT switch to Y/C or CVBS. (See page 27.)
(3) Load the appropriate cassette into both the connected recorder and the GF-S1000HE.
(4) Engage the GF-S1000HE's Record Standby mode.
(5) Engage the connected recorder's Record Pause mode.
- The viewfinder's mode indication corresponds to the state of the connected recorder.

(6) Press the Start/Stop button of the GF-S1000HE. The connected recorder automatically starts recording corresponding to the GF-S1000HE's operation.

- **Connection to a VCR equipped with a REMOTE PAUSE terminal**


(S-VIDEO equipped VCR, such as JVC HR-S5000E) Rear view
To PAUSE connector
To AV input
To AV OUT terminal
TV receiver
A/V output cable (provided)

- **Connection to a VCR equipped with a camera connector**



- With this connection (via the VC-V810U conversion cable), only the left-channel audio will be recorded.
- With the VC-V810U conversion cable, dubbing from the GF-S1000HE to the connected recorder is not possible.

Notes:
- If you wish to record only on the connected recorder, first engage the GF-S1000HE's Rehearsal mode instead of Record Standby mode.
- If you use an S-VHS recorder equipped with S-VIDEO input, it is recommended to use the A/V output cable (provided) to make recordings of high Super VHS quality.
- Power is not supplied to the GF-S1000HE from the connected VCR. Independent power supply is required for both the GF-S1000HE and the VCR.
- If you stop recording by pressing the GF-S1000HE's Start/Stop button, the connected VCR also stops in the Pause mode. However, the pause command signal is not delivered to the connected VCR in the following cases and, therefore, the VCR will continue running:
  (1) When the GF-S1000HE is switched off or its battery becomes discharged.
  (2) When the VC-V810U cable is disconnected.

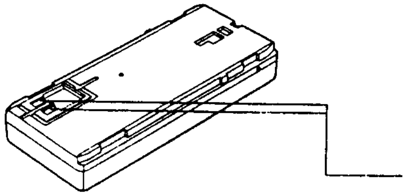
Therefore, before replacing the battery or tape for the GF-S1000HE, put the connected VCR either in the STOP or REC LOCK mode.

CHARGING THE BATTERY PACK

To charge the battery pack, use the exclusive AA-V12EG AC power adapter/battery charger (provided/optional).

A WORD ON THE EXCLUSIVE BN-V90U/NB-P4U BATTERY PACKS

The BN-V90U/NB-P4U are nickel-cadmium batteries. Give attention to the following to make the most of their characteristics.



Temperature ranges:

The recharging time is based on room temperature of 20°C
The lower the temperature, the longer the recharging time.

For charging: 10°C to 35°C
For operating: 0°C to 40°C
For storing: 0°C to 30°C

The battery pack has been kept in the uncharged state for shipment. Therefore, before use, charge it.

PRECAUTIONS FOR AA-V12EG

- If used near a radio, the provided AA-V12EG AC power adapter/battery charger may interfere with reception.
- Prevent inflammables, water and metallic objects from entering the unit.
- Do not disassemble or modify the unit.
- Do not apply shocks to the unit.
- Do not subject the unit to direct sunlight.
- Avoid using the unit in extremely hot or humid places.
- Avoid using the unit in places subject to vibrations.

Recording time for the GF-S1000HE

BN-V90U 80 min.	NB-P4U 50 min.

- The recording time per charge is influenced by the duration of recording standby, frequency of zooming, etc. It is safer to have spare battery packs.

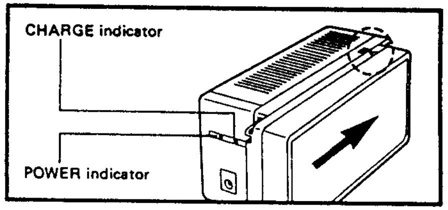
Charging procedure

Charging time

BN-V90U 120 min.	NB-P4U 70 min.

- The charging time differs depending on the ambient temperature and the condition of the battery pack.

- When sliding the battery pack on or off the charger, make sure that the charger's power cord is not yet connected.



1 Align the marks.

2 Slide the battery pack in the direction of the arrow until it locks in place.

3 Connect the AC power cord to a wall outlet.

4 The POWER indicator will light first, then the CHARGE indicator will light in a few seconds.

5 When charging is completed, the CHARGE indicator goes out.

CAUTION

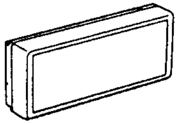
- If the power cord is left connected after the CHARGE indicator goes out, additional charging continues with a small amount of current.
- Faint oscillation may be heard at the start of charging. This is not due to any defect of the unit.

6 Remove the battery pack by sliding it off.
- The battery pack becomes warm immediately after being charged. This is not due to any defect of the unit.

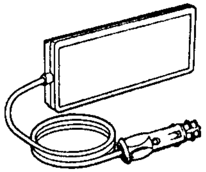
SYSTEMS FLEXIBILITY

For maximum enjoyment, in addition to the provided accessories, make the most of the optional accessories depending on the situation.

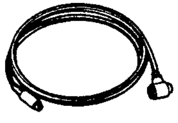
- **High-capacity battery pack BN-V90U Page 10**
- **Medium-capacity battery pack NB-P4U Page 10**



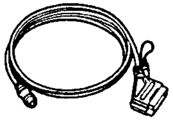
- **Car battery cord AP-P3E Page 10**
  For power supply from a car battery via the cigarette lighter socket.



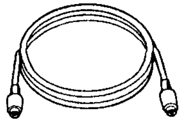
- **S-VIDEO input cable VC-V804E Page 32**
  Use to connect the GF-S1000HE to a television set equipped with an S-VIDEO output connector for recording, or to an S-VHS recorder for dubbing.



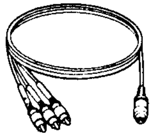
- **AV output cable VC-V8961SE Page 27**



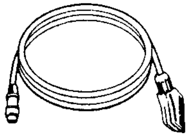
- **S-VIDEO cable VC-V44U Page 27**



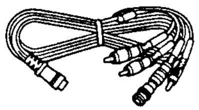
- **A/V input cable VC-V83U Page 32, 34**
  Use to connect the GF-S1000HE to an audio set equipped with output connectors for recording, or to a second recorder for dubbing.



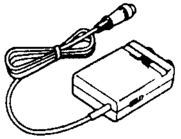
- **A/V input cable VC-V809SE Page 29, 32, 33**
  Use to connect the GF-S1000HE to a television set equipped with an A/V output connector for recording, or to a second recorder for dubbing.



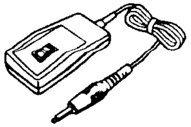
- **AV output cable VC-V837E Page 27, 31, 33, 35, 36**



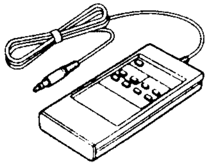
- **RF unit RF-V3E Page 28**
  Use to connect the GF-S1000HE to a regular TV receiver for playback.



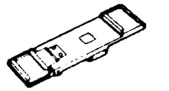
- **Remote control unit RM-P1U Page 40**
  Controls recording start/stop from a distance.



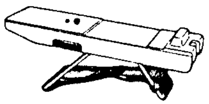
- **Remote control unit RM-V10U Page 41**
  Controls the GF-S1000HE's VCR functions from a distance.



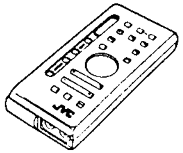
- **Shoe adapter CU-V410U Page 39**
  Use to attach microphone, character generator, etc.



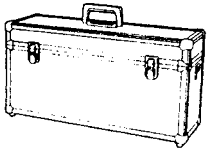
- Shoulder frame CU-V320U
  Use to obtain stabler shots with the GF-S1000HE.



- Character generator CG-P50E Page 39
  Allows superimposition of titles, dates and lap time during recording.



- Carrying case CB-V300U
  Use to carry the GF-S1000HE together with accessories.

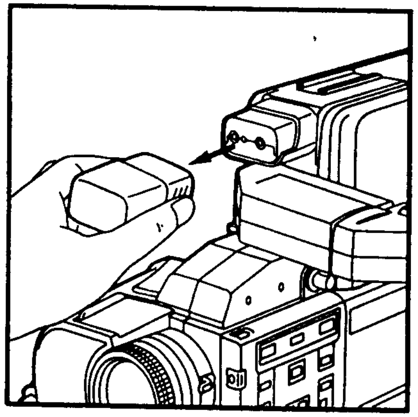


USING OPTIONAL ACCESSORIES

Shoe adapter

The shoe adapter allows attaching external microphones and character generator.

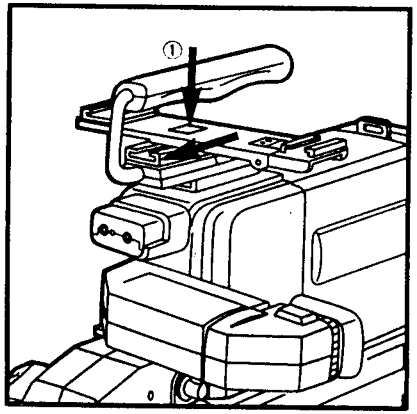
1



Hold the provided microphone and pull in the direction of the arrow.

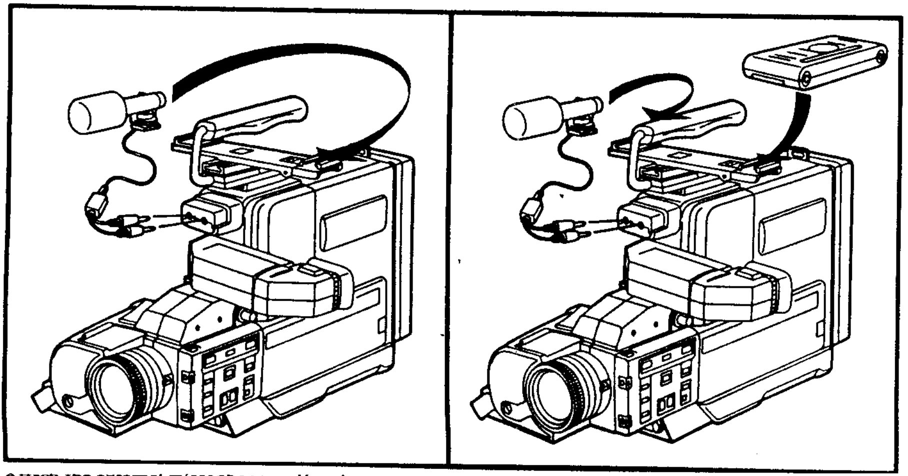
- Do not hold the sponge section.

2



Attach the shoe adapter as shown. Slide the shoe adapter while keeping the button ① pressed until it is locked.

3

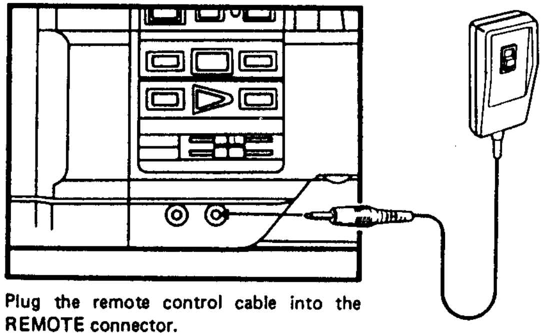


Attach the external microphone and/or character generator.

Pause remote control unit

The RM-P1U remote control unit (optional) permits recording start/stop to be controlled from a distance.

1



Plug the remote control cable into the REMOTE connector.

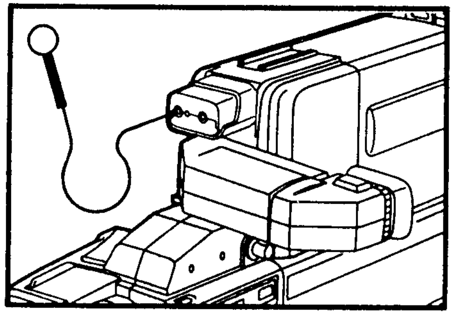
2 Press the RECORD button to engage the Recording Standby mode.

3 To start recording, set the remote control's switch to REC; to stop temporarily, set it to PAUSE.

Note:
Fader will not function when remote control unit is connected.

External microphone

To use another microphone, do the following:



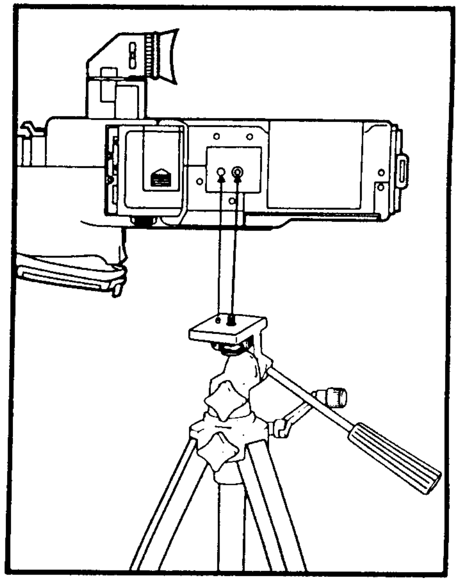
Plug the external microphone's cord into the microphone jack.

- When using the optional wireless microphone unit, plug the cable of receiver unit into the microphone jack.

- **The recorded sound will be:**

Microphone	Recorded soundtrack
• Monaural mike connected to "L"	• L-channel only
• Monaural mike connected to "R"	• L & R channels (mono)
• Stereo mike connected to "L" & "R"	• L & R channels (stereo)

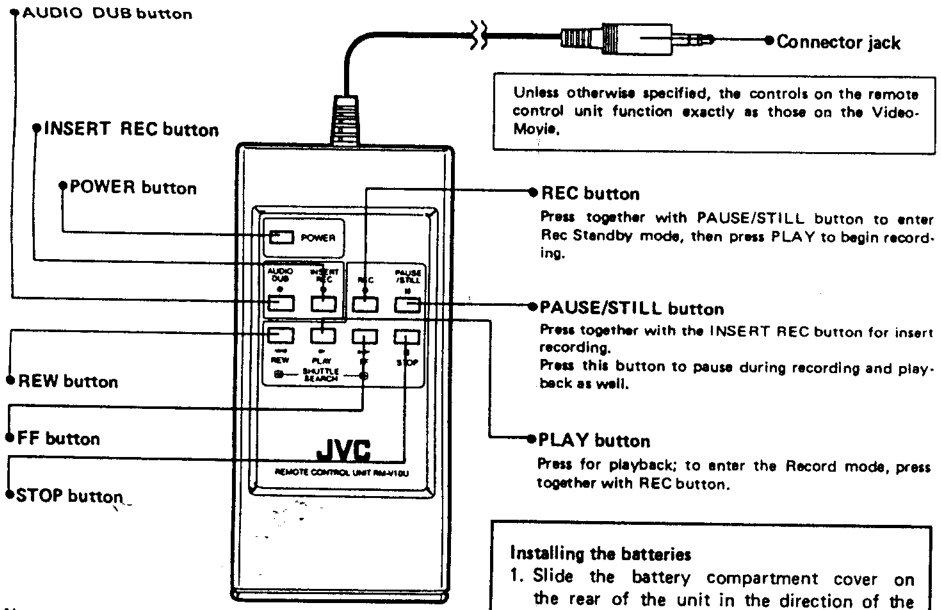
Tripod mounting



Align the screw and camera direction stud of the tripod with the camera's tripod mounting socket and stud hole, and firmly tighten the screw.

USING THE REMOTE CONTROL UNIT (optional)

The remote control unit RM-V10U (optional) permits the GF-S1000HE's VCR functions to be controlled from a distance.



Unless otherwise specified, the controls on the remote control unit function exactly as those on the VideoMovie.

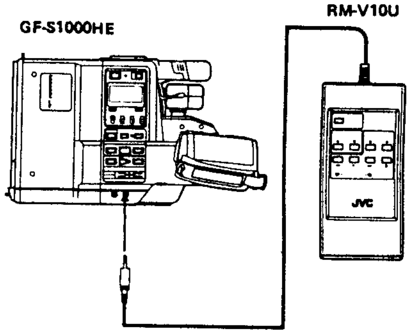
REC button
Press together with PAUSE/STILL button to enter Rec Standby mode, then press PLAY to begin recording.

PAUSE/STILL button
Press together with the INSERT REC button for insert recording.
Press this button to pause during recording and playback as well.

PLAY button
Press for playback; to enter the Record mode, press together with REC button.

Note:
The Rehearsal mode cannot be engaged using this unit.

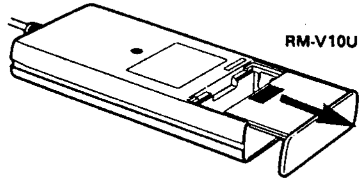
Connecting the remote control



- Plug the remote control cable of the remote control unit into the REMOTE connector on the VideoMovie.

Installing the batteries

1. Slide the battery compartment cover on the rear of the unit in the direction of the arrow.



2. Insert 2 "R6"-size batteries (provided), observing correct polarities, into the battery compartment.
3. Replace the cover.

Precautions

- Avoid violent shocks, especially take care not to drop the unit.
- Take care not to allow liquid to spill into the unit.
- Do not place heavy objects on the unit.
- Avoid leaving the unit in places subject to direct sunlight or extremely high temperatures.

SUPPLEMENTAL INFORMATION

What is "colour temperature"?
Light is composed of various colour components in different proportions. A relationship exists between the temperature of a light source and the colour components of the emitted light; as the temperature rises, the colour of the light varies from red, orange, yellow, white to blue in that order. "Colour temperature" is a value that expresses differences in colour among light sources, measured in Kelvin degrees. Bluish light has a higher colour temperature than reddish light.

What is "white balance"?
Making the colours look natural on TV is what white balance is all about. Because a camera is not as adaptable as the human eye, if a light source is reddish, white subjects in that light are recorded as reddish. White balance adjustment is performed to compensate for colour temperature variations of light so that whites are reproduced as white. Correct white balance makes all other colours correct. The GF-S1000HE can perform automatic white balance adjustment in the full-auto mode. However, if illumination is insufficient, white balance adjustment cannot be performed. To obtain correct colours, therefore, sufficient illumination is essential.

What is "illuminance"?
"Illuminance" (also called 'luminance') is the intensity or brightness of light, expressed in lux. The GF-S1000HE is designed to provide best pictures under the conditions of a 700-lux illuminance, although shooting is possible all the way down to 10 lux. To obtain good pictures in very bright light, the use of an ND (neutral density) filter is recommended. (See chart on the right.)

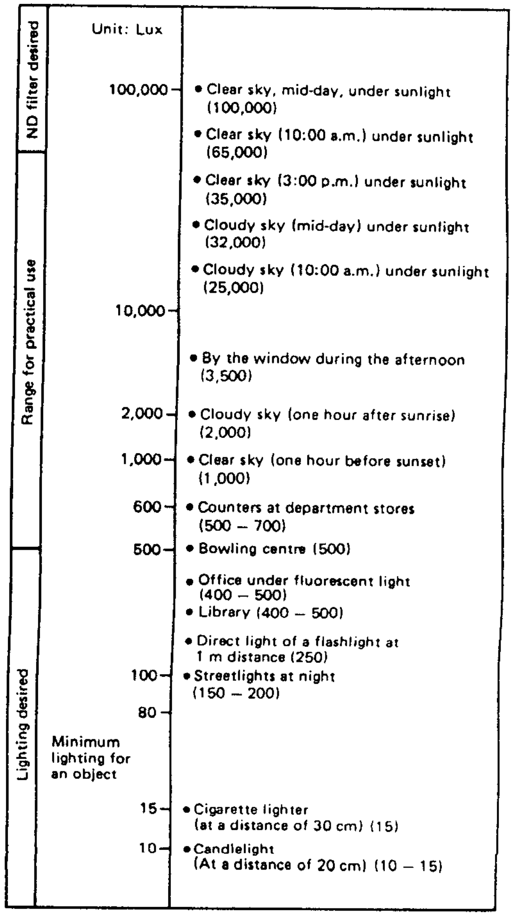
How to get good colour pictures
The simplest way is to provide sufficient lighting (close to the camera's reference illuminance) and accurately adjust the camera to the colour temperature of that lighting. If light sources of different colour temperatures are used together, accurate white balance adjustment is very difficult. For example, if natural light is mixed with artificial light, which is likely to occur next to windows, correct colours of the subject are difficult to obtain. It is recommended in such cases that curtains in the room be closed to shut out light from outside. Also, when artificial lighting devices are used, they should all have the same colour temperature. For example, it is recommended that incandescent or halogen lamps not be used together with fluorescent lighting.

Colour temperatures of various artificial lighting

Type of illumination		Colour temperature
Tungsten lamp for home use		2800 K
Tungsten lamp for photographic use		3200 K
Quartz-halogen lamp		
Blue lamp for photographic use		5000 K
Fluorescent lamp	Warm white	3500 K
	White	4500 K
	Daylight type	6500 K

Illuminance chart

- The values on this chart are approximated to give you a rough reference.



IN CASE OF DIFFICULTY

What may initially appear to be trouble is not always a real problem. Make sure first . . . . .

Symptoms	Check points
No power is supplied.	●Is the battery pack correctly installed? ●Is the battery pack charged? ●Is the power supply unit correctly connected?
Recording is impossible.	●Check to see if the cassette safety tab is in place. See page 3.
Picture colours greatly differ from actual subject colours.	●If in the manual white balance mode, check the setting of the WHITE BAL button.
No sound is recorded.	●Is a microphone connected? ●If the ALC switch is set to OFF, are the Hi-Fi AUDIO REC LEVEL controls set to MIN position?
Recording does not start.	●Have you pressed the RECORD button first?
Tape is running, but no playback picture appears.	●Is the TV/VIDEO switch of the RF unit set to VIDEO? ●Is the TV receiver set to your video channel?
Noise bars appear in the playback picture.	●Use the TRACKING control to reduce noise bars.
Breaks are noticeable in hi-fi audio reproduction.	●Adjust with the TRACKING control.
Soundtrack on the hi-fi audio track cannot be reproduced.	●Is the AUDIO OUT select button set to NORM? – Set it to Hi-Fi.
Playback picture and/or Hi-Fi audio is blurred or interrupted.	●Video heads may be dirty or worn out. For head cleaning or replacement, consult the nearest JVC Dealer.
Tape stops during fast forward or rewind.	●Is the "M" indication visible on the LCD? If so, press the MEMORY button to cancel the memory function.
Rewinding or fast forwarding is impossible.	●Check to see if the tape has already been fully wound on one reel or the other.
No function is available with more than two mode indicators lit.	●If this should happen when using power supply units other than the battery pack, turn their POWER switch on and off. With a battery pack, replace it with another charged one.
Vertical white lines appear when shooting a very bright object.	●This may occur when the background contrasts very much with the object. This is normal.

The GF-S1000HE is a microcomputer-controlled device. External noise and interference might prevent it from functioning properly. In such cases, first disconnect its power supply unit (battery pack, AC power adapter, etc.); and then reconnect it and proceed as usual from the beginning.

SPECIFICATIONS

Format : S-VHS/VHS PAL standard with Hi-Fi audio
Power source : DC 12 V ⎓
Power consumption : 13 W
Signal system : PAL-type colour signal and separated Y/C signals conforming to PAL, 625 lines
Video recording system : Rotary, two-head helical scan system with slant double-azimuth combination video heads
Hi-Fi audio recording system : Deep-layer recording system conforming to stereo Hi-Fi VHS standard
No. of audio channels : 2 Hi-Fi audio channels
1 normal audio channel
Cassette tape used : S-VHS and VHS video cassettes
Tape speed : 23.39 mm/sec
Maximum recording time : 240 min. with E-240 video cassette

VIDEO

Output : 1.0 Vp-p, 75 ohms, unbalanced
Input : 0.5 to 2.0 Vp-p, 75 ohms, unbalanced
S/N ratio : 43 dB

AUDIO

Output level : –6 dBs, high impedance load
Output impedance : Less than 1 k-ohm, unbalanced
Input : –8 dBs, more than 50 k-ohms, unbalanced
Microphone input : –68 dBs, high impedance, unbalanced

Hi-Fi AUDIO

Frequency response: 20 Hz to 20,000 Hz
Dynamic range : More than 80 dB
Wow and flutter : Less than 0.005 % WRMS
Pickup : 1/2"-format field storage CCD (390,000 pixels effective/ 420,000 in total)
Minimum required illumination : 10 lux (at F/1.2)
Illumination range : 10 – 100,000 lux
Viewfinder : Electronic viewfinder with 0.7" black/white CRT
Lens : F/1.2, f = 9 – 72, 8:1 two-speed power zoom lens with macro position, filter diameter of 52 mm
Colour temperature switching : Switchable (3,200 K/4,500 K/ 5,500 k)
White balance adjustment : Auto Tracking white balance
Iris : Centre-weighted auto-iris with backlight compensation and manual override
Focus : TCL* Image Sensing auto-focus (auto/manual switchable)
Exclusive microphone : Unidirectional stereo condenser microphone
Variable-speed shutter : Switchable (1/50, 1/250, 1/500 and 1/1000-second)
Operating temperature : 0°C to 40°C
Operating humidity : 35 % to 80 %
Storage temperature : –20°C to 50°C
Dimensions : 132(W) x 212(H) x 376(D) mm
Weight : 2.7 kg with viewfinder

AC power adapter/battery charger AA-V12EG

Power requirement : AC 110 – 240 V∿, 50/60 Hz
Power consumption : 35 watts
Output : DC 12 V ⎓ 1.2 A
Charging system : Constant current, peak detection, timer controlled
Dimensions : 57(W) x 74(H) x 179(D) mm
Weight : Approx. 650 g

RF unit RF-V3E

Output channel : UHF channel 32 – 40 (adjustable)
Initial channel setting : UHF 36
Power source : DC 8 V ⎓ 20 mA (from VideoMovie)
Dimensions : 52(W) x 80(H) x 24(D) mm excl. cable
Cable length : 2.5 m
Weight : Approx. 160 g

Provided accessories:

AC power adapter/battery charger AA-V12EG
S-VHS cassette tape SE-30
Battery pack BN-V90U
AV output cable VC-V8961SE
RF unit RF-V3E
Carrying handle
Shoulder strap
Electronic viewfinder
Stereo headphones
Lens cap
Lens hood
Lithium battery for clock operation

*A registred trademark.

Design and specifications subject to change without notice.

SECTION 1
SERVICE CAUTION AND DISASSEMBLY

1.1 PRECAUTIONS

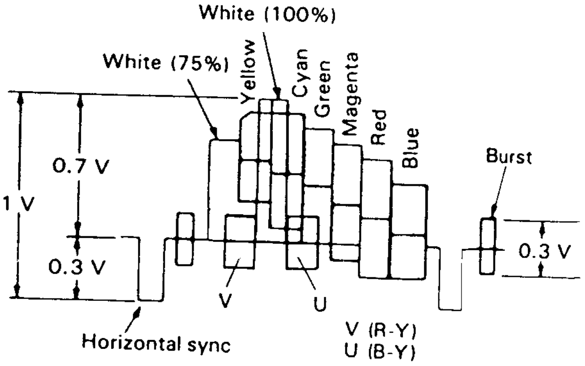
1. Disconnect unit from power before removing or soldering components.
2. When removing a fastener (screw, washer, etc.), be careful not to drop it into the mechanism. If a fastener should be dropped, be sure to retrieve it.
3. When removing a connector, pay enough attention to flexible wires and every wiring not do damage them.
4. Some resistors, shorting jumpers (0 ohm resistance), ceramic capacitors and diodes are chip parts. These chip parts cannot be reused after they are once removed. Refer to Section 1.3.
5. Electrical adjustments are required after replacing circuit components and certain mechanical parts. It is important to perform these adjustments only after all repairs and replacements have been completed. Also, do not attempt these adjustments unless the proper equipment is available. Especially, when turn the VR of the camera portion without permission, the whole steps to adjust all VRs may be required.
6. When removing and fitting together parts, be careful not to damage or displace other parts. (Be especially careful with the video head ass'y and the tape transport mechanism.)
7. Pay enough attention to the CCD image sensor and optical filter so that they won't be dusty, soiled or damaged. It it is soiled with fingerprints, etc., clean gently with silicon lens tissue or chamois.
8. When fitting and wiring an IC, be careful not to damage circuit patterns.

1.2 TEST EQUIPMENT AND TOOLS REQUIRED FOR ADJUSTMENTS

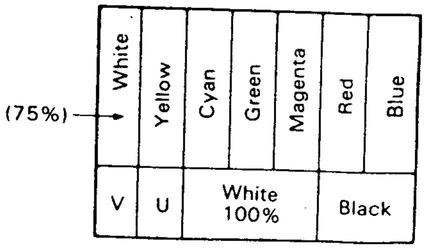
For correct measurement and proper adjustment, prepare the following test equipment and tools besides general-purpose tools.

1.2.1 Required test equipment and tools

1. Color video monitor
2. Blank tape for recording and playback
3. AC power adapter (AA-V12EG/EK or equivalent)
4. Oscilloscope (dual-trace type, more than 20 MHz)
5. Frequency counter
6. Audio tester
7. Vectorscope
8. General tools such as precision screwdrivers, tweezers, hex. wrenches, soldering iron, etc.
9. Halogen lamps
10. Screwdriver with nonmagnetic 0.35 mm bit.

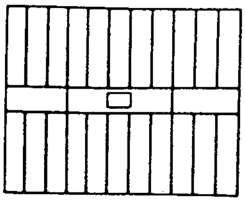
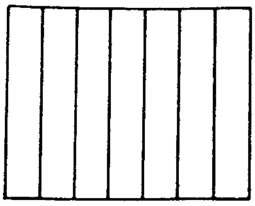
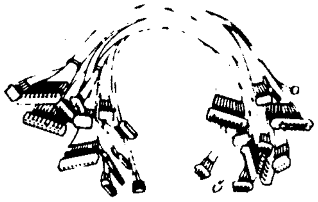
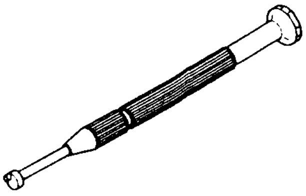
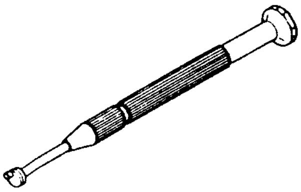
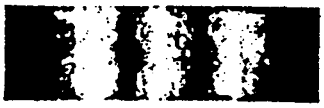
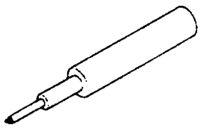
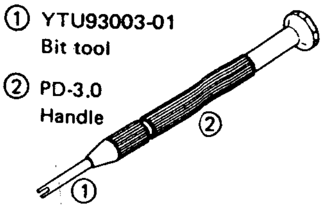
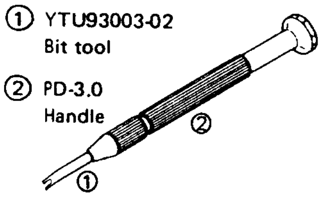
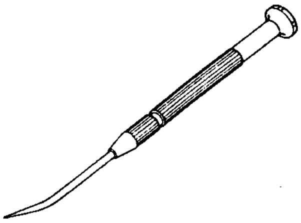
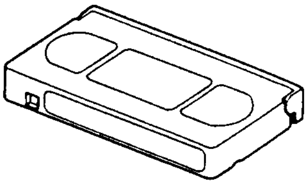
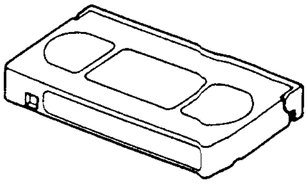
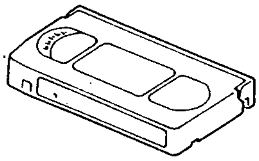
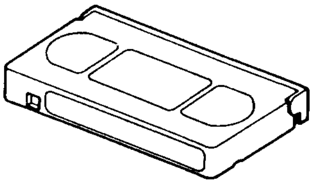
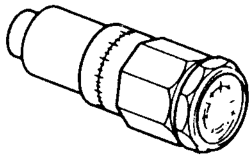
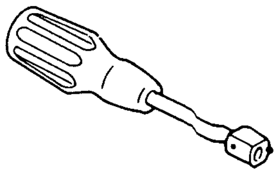
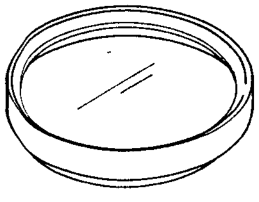
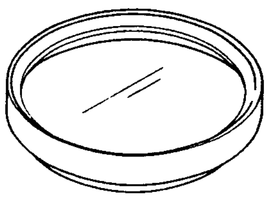
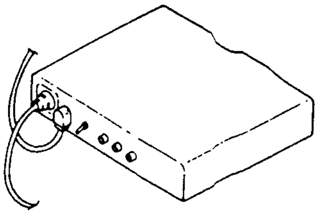
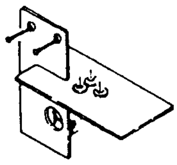


Waveform of color bars signal



Color bar pattern

1.2.2 Special test equipment and tools required for adjustments

Grey scale pattern (GS-2A) Reflection type, 11 steps, $\gamma = 2.2$	Color base pattern (CC-2A) Reflection type, 7-color	Patching cord YTU93005C	Back focus asjustment handle PUJ37186A
			
Auto focus unit Bacj focus adjustment handle PUJ37186B	Auto focus unit Back focus adjustment chart PUJ93944	Adjustment jig compact VTR YTU93004	Chip parts replacement jig ass'y YTU93003A
			
Chip parts replacement jig ass'y YTU93003B	Chip IC replacing tool PTS40844	Aligment tape MH-2	Alignment tape MH-2H
			
Back tension cassette gauge PUJ48076-2	Alignment tape MH-F2	Torque gauge assembly PUJ48075-2	A/C head position tool PUJ47351-2
			
Color temperature conversion filter (PUJ53340A-C2,C4,C8,W2,W4,W8)	Neutral density filter (PUJ53341A - ND2, ND4, ND8)	Color compensating filter - CC10Y (CC10Y filter made by Kodak)	Y/C separator PUJ25579-2
		This filter is CC10Y in Kodak.	
Adjust coil PTU94004A			
			

1.3 REPLACEMENT OF CHIP PARTS

For replacing chip parts, proceed it as follows.
Use a well insulated fine-tipped soldering iron (approx. 17 W, 130°C ~ 260°C in temp.).
In addition, it is recommended to use a soldering iron (55 W approx.) with solder absorber for convenience.

Caution:
- Do not apply heat for more than 3 seconds.
- Do not rub electrodes.
- Do not reuse chips removed once. Discard them.
- Supplementary cementing is not required.

1.3.1 Soldered condition of chip parts

- Resistors, capacitors, etc.

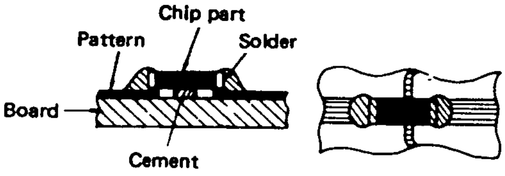


Fig. 1-3-1 Soldering condition-1

- Transistors, diodes, etc.

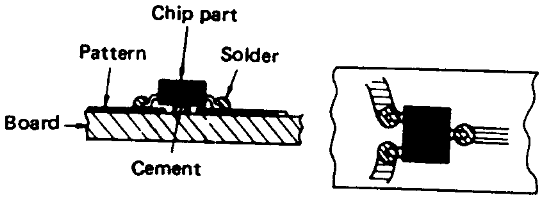


Fig. 1-3-2 Soldering condition-2

1.3.2 How to remove chip parts

- Resistors, capacitors, etc.

1. Set a chip parts replacing tool onto the chip parts to hold it down.
2. Unsolder at a side of the chip parts.

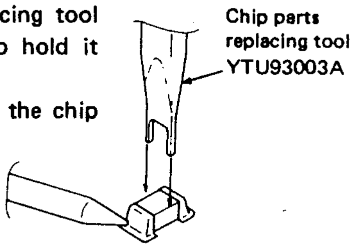


Fig. 1-3-3 R/C removal-1

3. Remove the chip parts by twisting and sliding it.

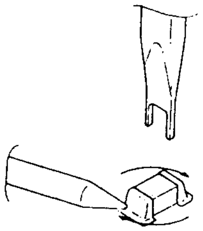


Fig. 1-3-4 R/C removal-2

- Transistors, diodes, etc.

1. Unsolder at the one-lead side of the chip parts.

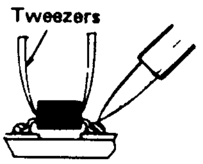


Fig. 1-3-5 Tr/Diode removal-1

2. Lift the unsoldered side upwards.

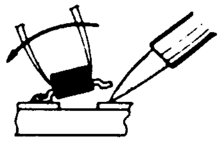


Fig. 1-3-6 Tr/Diode removal-2

3. Heat the other two leads simultaneously and remove the chip parts upwards.

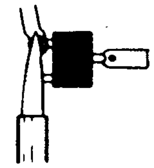


Fig. 1-3-7 Tr/Diode removal-3

1.3.3 Preheating and soldering

When setting new chip parts, especially capacitors, except transistors, preheat them with hot air (1 approx.) by use of a blower type of hair dryer for ab minutes just before solderingg. For soldering, use a so ing iron of 30 W approx.

1.3.4 How to set and solder chip parts

1. Presolder the contact points of the circuit pattern, to which the chip parts will be soldered.

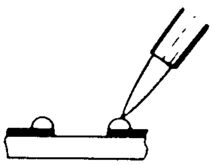


Fig. 1-3-8 Soldering-1

2. Holding down the chip parts with the chip parts replacing tool, solder it with a soldering iron.

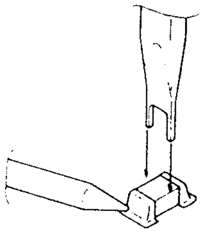


Fig. 1-3-9 Soldering-2

1.4 REMOVING OF FLAT ICs
(Recommendable manner)

1. For removing solder chips from IC's pins, use a solder remover or a wiry solder absorber.
2. Heat the IC's tips evenly by moving the chip IC replacing jig around them, and detach the IC's leads with a tool in the way of using a lever.
3. Do not reuse ICs removed once. (Discard them.)

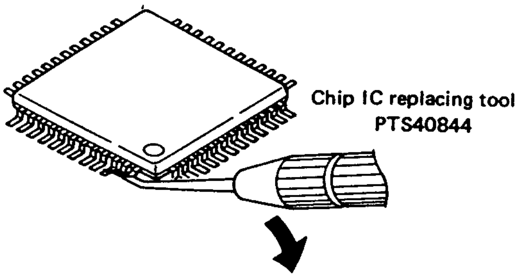


Fig. 1-4-1 Flat IC removal

1.5 DISASSEMBLY

1.5.1 Viewfinder

1. Remove the viewfinder cable form the viewfinder cable connector (EVF).
2. Slide away the viewfinder holder until the latch engages the hole. Push the latch with a small pointed object (like a ball point pen) and pull out the viewfinder. (shown in Fig. 1-5-1).

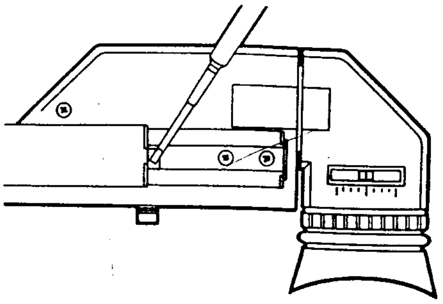


Fig. 1-5-1 Viewfinder removal

1.5.2 Cassette cover

1. See Fig. 1-5-2 (A)
   Look into the pinhole on the rear of the main body to confirm a pin inside and its position. Next, insert a thin screwdriver into the pinhole and push it leftwards to raise the cassette housing upward.

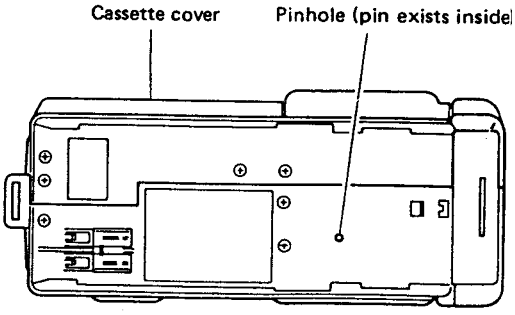


Fig. 1-5-2 (A) Rear view of main body

2. See Fig. 1-5-2 (B).
   Remove two screws Ⓐ (shown in the figure). Slide the cassette cover to the front and raise it up for removal.

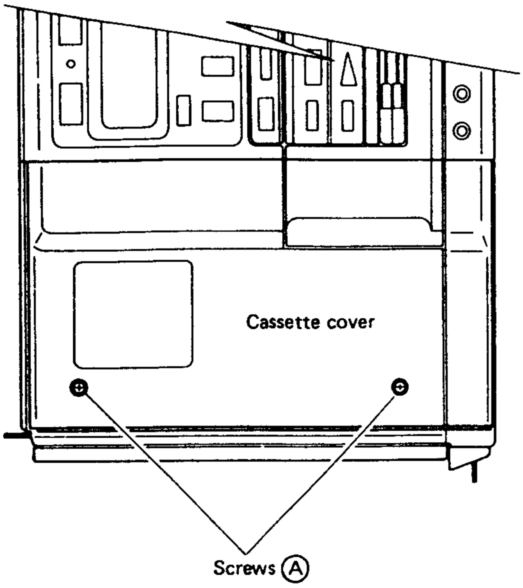

Cassette cover
Screws Ⓐ

Fig. 1-5-2 (B) View of grip side

1.5.3 Top panel

1. See Fig. 1-5-3 (A).
   Remove two screws Ⓐ (refer to the figure).

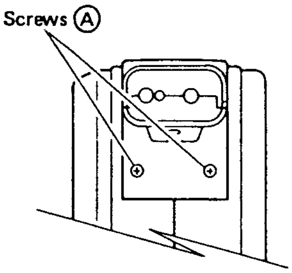


Fig. 1-5-3 (A) Front side

2. Remove the shoe screw Ⓑ and remove the shoe clip (Fig. 1-5-4 (B).
3. Remove four screws Ⓒ securing the shoe (Fig. 1-5-4 (B).
4. Slightly slide the top panel to the front side and raise it up for removal.

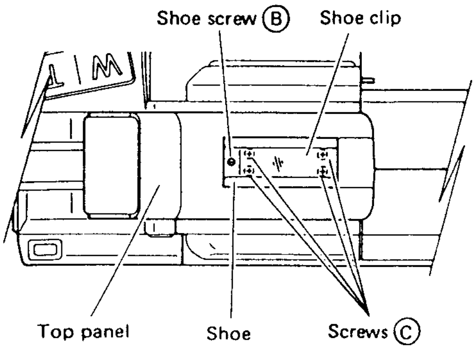

Shoe screw Ⓑ
Shoe clip
Top panel
Shoe
Screws Ⓒ

Fig. 1-5-3 (B) Top view

1.5.4 Lens section (grip case & control panel)

1. See Fig. 1-5-4.
   Remove two screws Ⓐ securing the battery case, and draw the battery case to the front side.
2. Remove screw Ⓑ inside the battery case.
3. Remove two screws Ⓒ.
4. Disengage the pawl of the lower case from the control panel, and draw out the whole of the lens section to the front side. At this time, pay attention to wires not to cut and damage them.

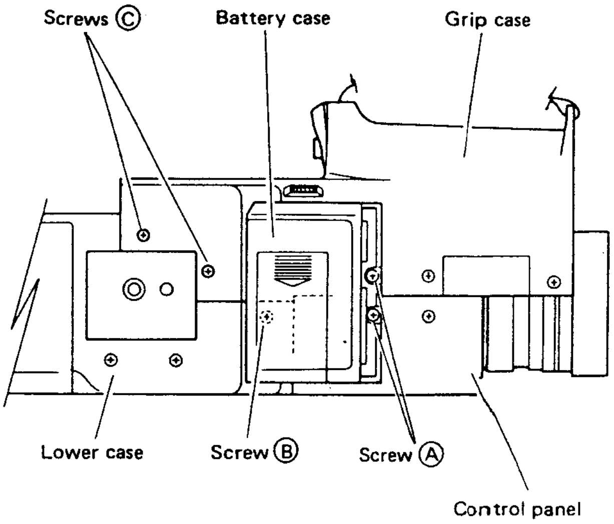

Screws Ⓒ
Battery case
Grip case
Lower case
Screw Ⓑ
Screw Ⓐ
Control panel

Fig. 1-5-4 (B) Bottom view of lens section

1.5.5 Grip case

1. See Fig. 1-5-5 (A).
   Remove two screws Ⓐ shown in the figure.

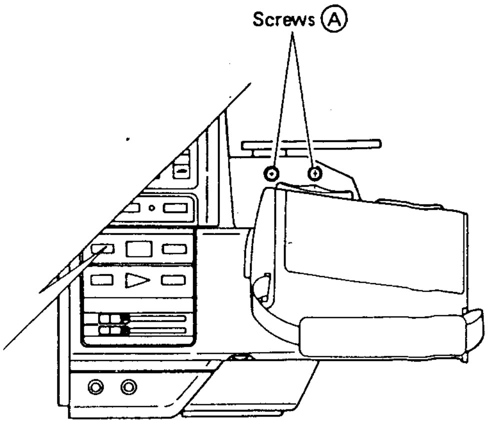


Fig. 1-5-5 (A) Grip side

2. See Fig. 1-5-5 (B).
   Remove two screws Ⓐ and Ⓑ to remove the grip case.

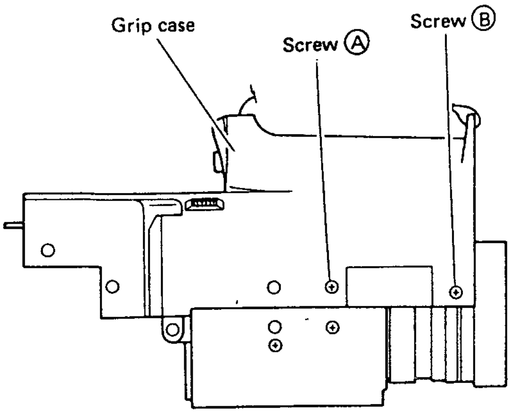

Grip case
Screw Ⓐ
Screw Ⓑ

Fig. 1-5-5 (B) Bottom view of lens section

1.5.6 Control panel

1. See Fig. 1-5-6 (A).
   Remove the screw Ⓐ shown in the figure.

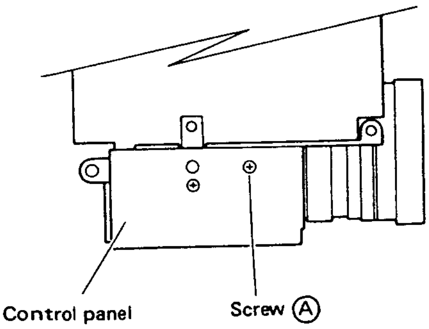

Control panel
Screw Ⓐ

Fig. 1-5-6 (A) Bottom view of lens section

2. See Fig. 1-5-6 B).
   Remove two screws Ⓑ (shown in the figure) and the control panel can be removed from the lens section.

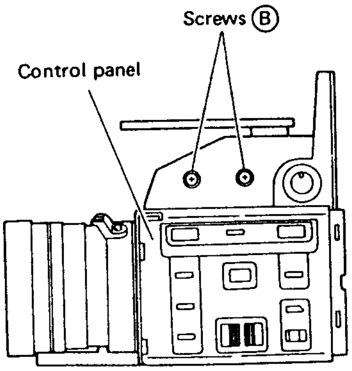

Screws Ⓑ
Control panel

Fig. 1-5-6 (B) Control panel side

1.5.7 Battery guide

1. See Fig. 1-5-7 (A).
   Remove three screws Ⓐ shown in the figure

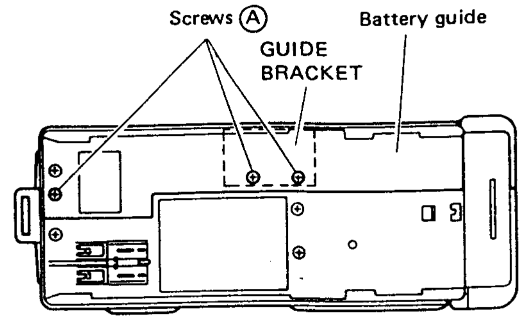

Screws Ⓐ
Battery guide
GUIDE
BRACKET

Fig. 1-5-7 (A) Rear view

2. See Fig. 1-5-7 (B).
   Remove screw Ⓑ (shown in the figure) on the bottom.

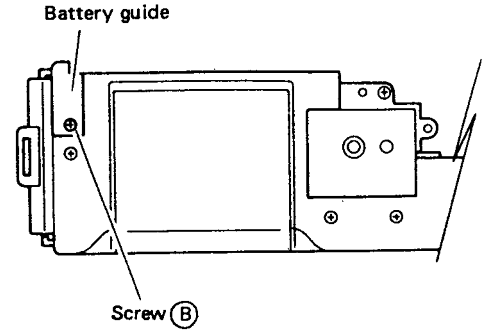

Battery guide
Screw Ⓑ

Fig. 1-5-7 (B) Bottom view

3. See Fig. 1-5-7 (C).
   Remove screw Ⓒ and draw out the battery guide.

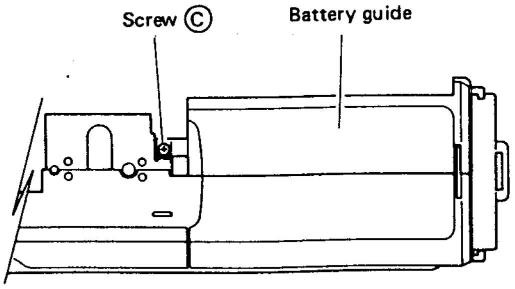

Screw Ⓒ
Battery guide

Fig. 1-5-7 (C) Top view

1.5.8 Lower case

1. See Fig. 1-5-8 (A).
   Remove two screws Ⓐ shown in the figure.

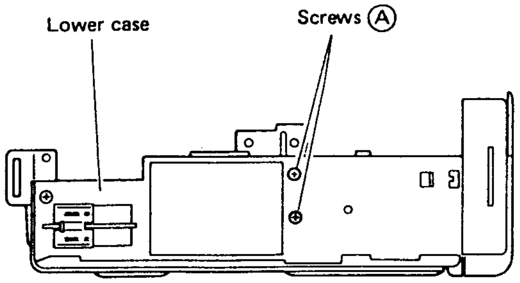

Lower case
Screws Ⓐ

Fig. 1-5-8 (A) Rear view

2. See Fig. 1-5-8 (B).
   Remove two screws Ⓑ snown in the figure.

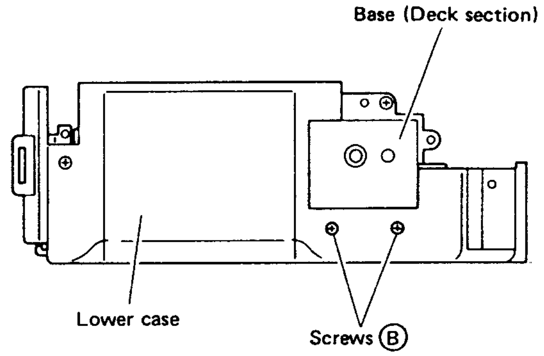

Base (Deck section)
Lower case
Screws Ⓑ

Fig. 1-5-8 (B) Bottom view

3. See Fig. 1-5-8 (C).
   Remove screw shown in the figure.
   Then, the lower case can be removed from the deck section.

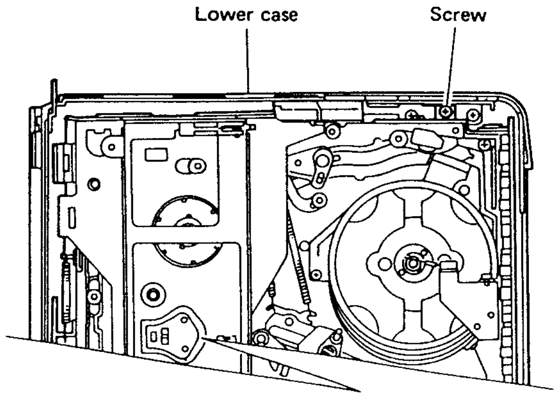

Lower case
Screw

Fig. 1-5-8 (C) Deck section

1.6 MAIN ASSEMBLY REPLACEMENT

1.6.1 A/C head (audio/control head)

1. Removal
1) Take out three screws, then remove the A/C head. Use care regarding springs. Do not lose them.
2) Unsolder wires from the A/C head.

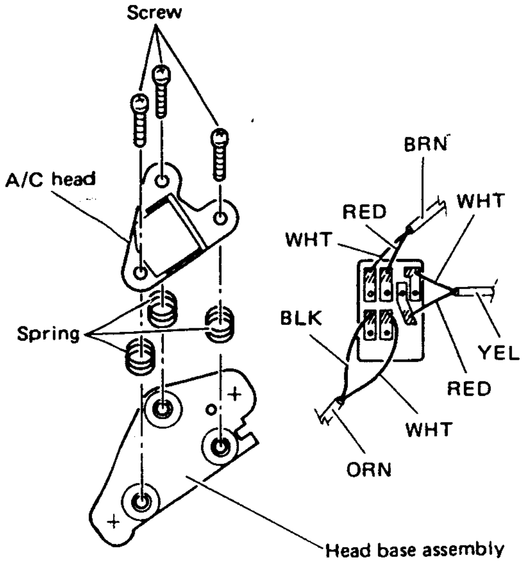

Screw
A/C head
Spring
Head base assembly
BRN
RED
WHT
WHT
BLK
YEL
RED
WHT
ORN

Fig. 1-6-1 A/C head

2. Installation
1) Mount a new A/C head on the head base assembly by reversing the removal procedure as shown in Fig. 1-6-1.
2) Perform rough-adjustment of A/C head height as shown in Fig. 1-6-1.

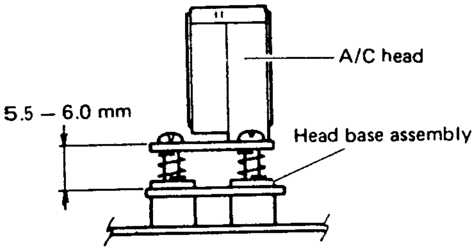

A/C head
5.5 – 6.0 mm
Head base assembly

Fig. 1-6-2 A/C head height

3. Confirmation and adjustment
1) Use a recording tape and perform interchangeability adjustment. Refer to section 2.3.
2) Perform overall confirmation of the Audio circuit. Refer to section 2.5.

1.6.2 Tension band assembly

1. Removal
1) Take out a screw, then pull out the A portion of the tension band assembly to separate it from the tension pole assembly.
2) Move the FF brake assembly to free the tension band assembly, then remove the tension band assembly from the supply reel disk.

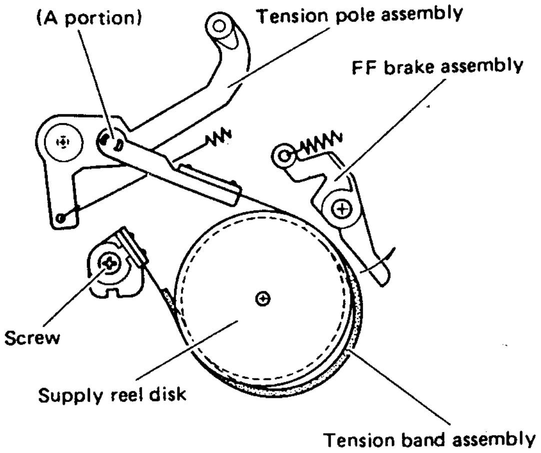

(A portion)
Tension pole assembly
FF brake assembly
Screw
Supply reel disk
Tension band assembly

Fig. 1-6-3 Tension band assembly

2. Installation
1) Install a new tension band assembly by reversing the removal procedure.
3. Confirmation and adjustment
1) Perform the tension pole position adjustment. Refer to section 2.3.

1.7 ASSEMBLY PROCEDURE OF MECHANISM

The mechanism of this model is mostly engaged to the mechanism control circuit, through the mode sensor. Therefore, the relation between the mode sensor and the control cam decides all mechanical movement of the mechanical parts such as levers, gears, rollers and so on. If these parts are not properly positioned, the unit will be compulsorily stopped. This will result in damage of mechanical or electrical parts.

1.7.1 Relation between loading rings and connect gears

1. Mount the TU loading ring and connect gear (1) normally, then position them as shown in Fig. 1-7-1.
2. Set the SUP loading ring to position its triangle marking at the center of the pole of the loading gear unit, and adjust the position of the TU loading ring so that its holes coincide with those of the SUP loading ring.
   Keeping these correlative positions, set the connect gear (2) to gear with the loading rings.

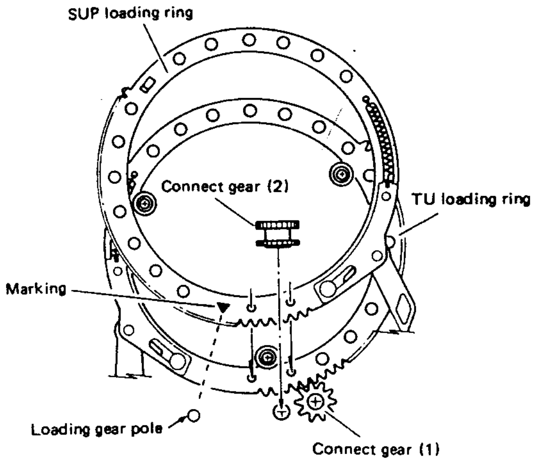


Fig. 1-7-1 Loading ring/connect gear

1.7.2 Installation of the loading gear unit

1. Install the loading gear unit so that the boss of the loading gear unit faces the marking of the SUP loading ring.
   Note: No gear portion of the loading gear unit is toward right.

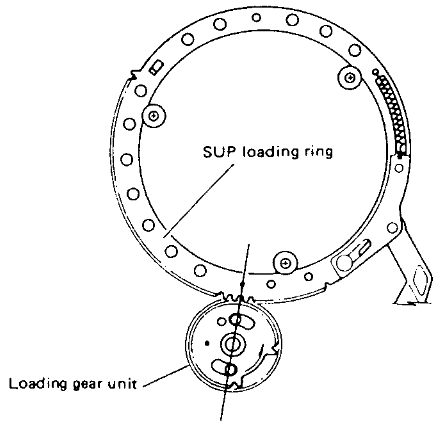


Fig. 1-7-2 SUP loading ring/loading gear unit

1.7.3 Installation of the control cam and cam lever (3)

1. Before insallation of the control cam and cam laver (3), turn gears in the opposite direcions so that the holes overlap each other, then insert screw (M 2.0) into the holes.
   Note: Remove this screw after complate setting if the control cam.
2. Shift the lock plate in the arrow direction to lock it.
   In this condition, the cassette housing lifts up.
3. Turn the cam lever (2) counter-clockwise fully.
4. Move the pinch roller plate to the utmost extent in the direction of the arrow mark (to the leftmost limit in the figure).
5. Then install the control cam so that the largest triangle mark of the control cam faces toward the center of the loading gear unit.
6. Turn the mode motor by hand, confirm that the control cam is able to rotate counter-clockwise.
7. Take out the screw from the loading gear unit.

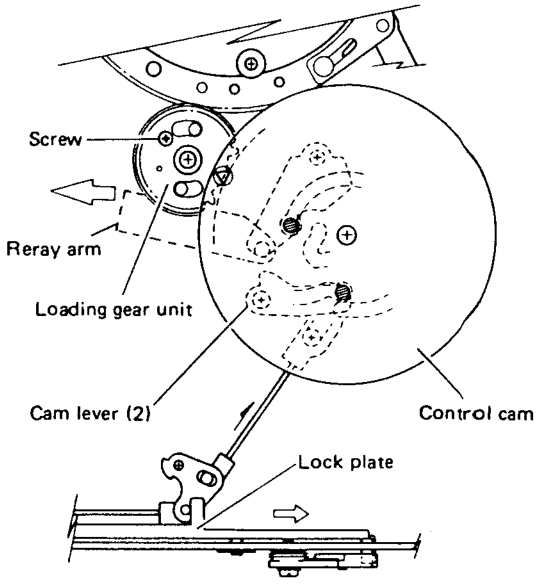


Fig. 1-7-3 Installation of control cam

8. Turn the mode motor by hand to rotate the control cam counter-clockwise, then set the cam lever (3) correctly as shown in Fig. 1-7-4.

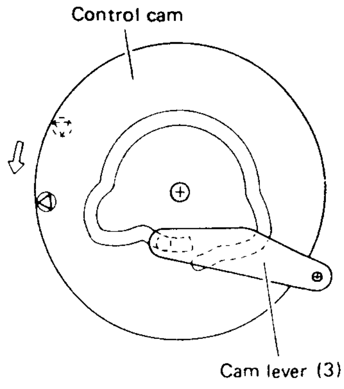


Fig. 1-7-4 Control cam/cam lever (3)

1.8 IMAGE SENSOR REPLACEMENT

1.8.1 Precautions

1. Pay careful attention to the transparent glass and optical filter of the CCD image sensor not to contaminate or damage them. If soiled with fingerprints, etc., wipe carefully with silicon lens tissue, clean chamois, etc..
2. The CCD image sensor is shipped with the orange protection seal applied onto its transparent glass. Remove it just before installing it in the optical block.

1.8.2 Removal of CCD image sensor

1. Remove two screws Ⓐ securing the imager holder Ⓑ.
2. Remove three screws Ⓖ securing the filter holder Ⓕ first and detach the optical low-pass filter Ⓔ , rubber Ⓓ , CCD image sensor Ⓒ , and imager holder Ⓑ one after another.

1.8.3 Attaching of a new CCD image sensor

1. Remove the protection seal from a new CCD image sensor Ⓒ and set it on the imager holder Ⓑ. Next, put the space rubber Ⓓ, optical filter Ⓔ and filter holder Ⓕ on the CCD image sensor as they are piled up in this order.
   At this time, pay attention to the following matters.

Parts	Caution at assembling
Imager holder Ⓑ	Set the side with parts number (back side) down.
CCD image sensor Ⓒ	Set the side with white marking up.
Space rubber Ⓓ	Set the IC side horizontally.
Optical filter Ⓔ	Set the marking to be positioned under the OP block.

2. Fix the filter holder Ⓕ to the imager holder Ⓑ with three screws.
3. Paying careful attention to the setting direction of the imager holder Ⓑ , fix it to the OP block with two screws Ⓐ .
4. After putting together all boards of the camera section, observe the monitor to check up that there is no vignetting caused by the bodytube, rings, lens hood, etc. If no vignetting is observed, it can be said that image's parallelism, horizontality and centering are correct.
5. After completion of the above assembling work, perform the specified adjustments of the camera section.

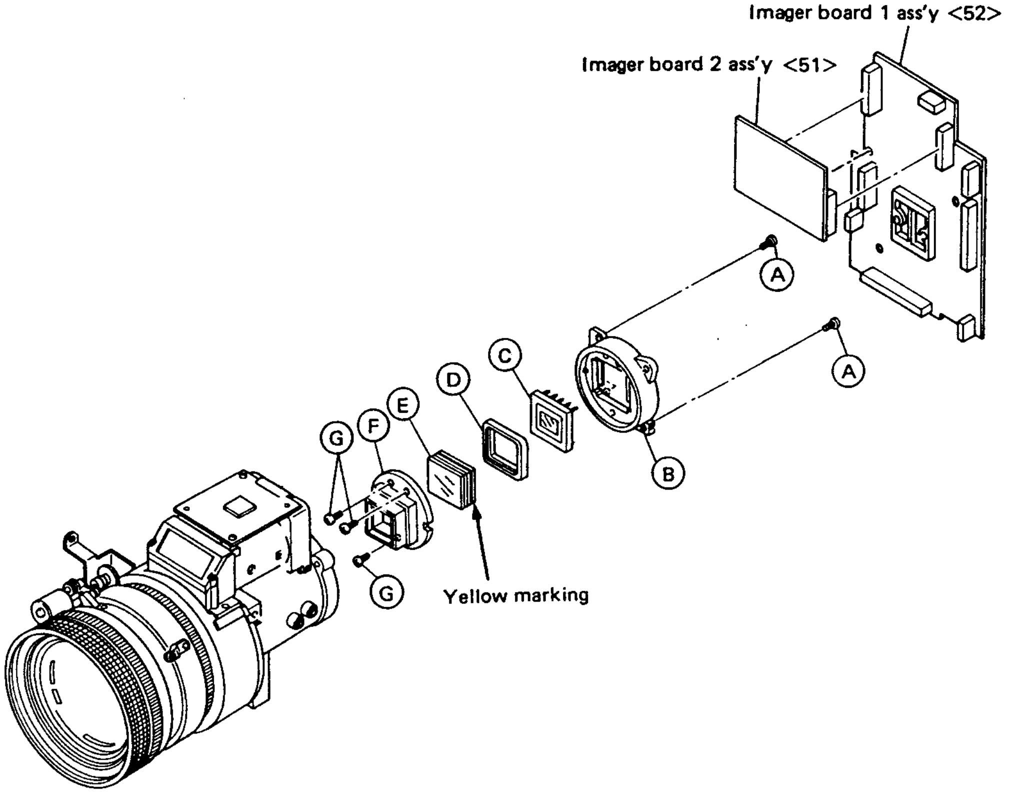


Fig. 1-8-1 CCD replacement

1.9 INSPECTION AND MAINTENANCE

Since this model is equipped with rotary parts and consumptive parts which wear away as time passes, it is important to clean the tape transport system and rotary parts as well as to apply oil and grease to them in order to make full use of its real capacity for a long time.

Besides such the simple maintenance work, it needs to replace wearing parts periodically.

1.9.1 Standard servicing schedule for main components

The following table indicates the standard servicing period by kind of servicing such as cleaning, oiling, replacing, etc. In practice, the indicated periods will widely vary according to environmental and using conditions, but it is plain that nonfulfillment of the maintenance work not only shortens the specific period of every item sharply but also influences other components badly.

Also be aware that rubber parts may possibly deform and age as time passes even when the set is not used.

System	Symbol No.	Parts Name	Ass'y	Periodic servicing schedule (operation hours)								
				250	500	750	1000	1250	1500	1750	2000	3000
Tape Transport system	1	Impedance roller		★	★	★	★	★	★	★	★	★
	2	Supply slant pole	a									
	3	Supply guide roller	a									
	4	Tension pole	a									
	5	Take-up guide pole	a									
	6	Take-up guide roller	a									
	7	Take-up slant pole	a									
	8	Capstan	a									
	9	Lower drum	a									
	10	Upper drum	a	★	★	☆	●	★	★	☆	●	●
	11	A/C head	a	★	★	★	★	★	★	★	★	●
	12	FE head	a	★	★	★	★	★	★	★	★	●
	13	Pinch roller	a	★	★	★	★	★	★	★	★	●
Drive system	14	Capstan motor	a								●	
	15	Belt					○				●	○
	16	Mode control motor										●
	17	Take-up clutch gear	a	△	△	△	▲	△	△	△	▲	▲
	18	Supply clutch gear	a	△	△	△	▲	△	△	△	▲	▲
	19	Center pulley	a				○				○	○
	20	Search brake lever		★	☆	★	☆	★	☆	★	☆	☆
	21	REW brake lever		★	☆	★	☆	★	☆	★	☆	☆
Other	22	Tension band	a				○				○	○
	23	Brush					○				○	○

★ : Cleaning
☆ : Cleaning (or Replacement if necessary)
△ : Lubrication
a : Will be provided as assembly parts for replacement
▲ : Lubrication (or Replacement if necessary)
● : Replacement
○ : Inspection or Replacement if necessary

Table 1-9-1 Maintenance schedule

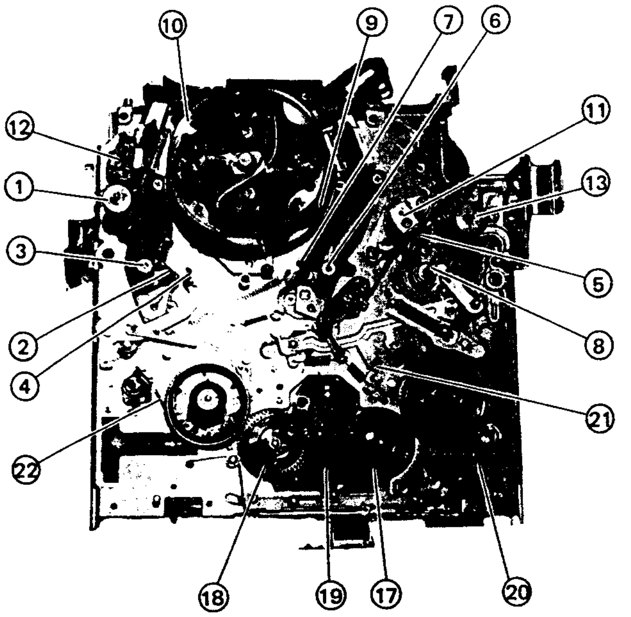


Fig. 1-9-1 Location of main mechanism parts (Top view)

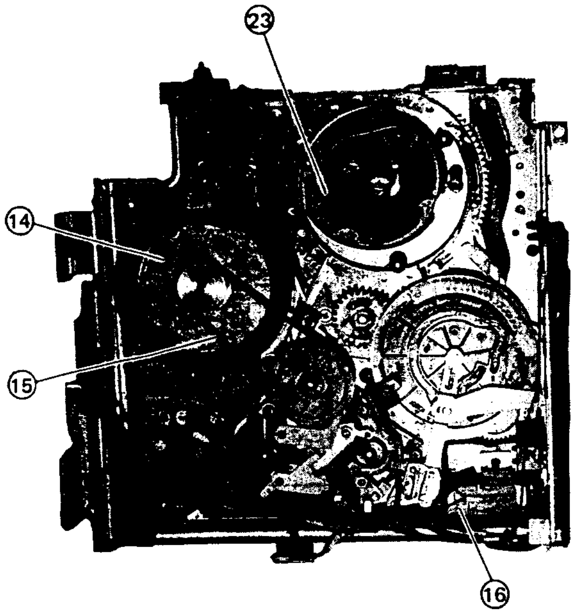


Fig. 1-9-2 Location of main mechanism parts (Bottom view)

1.9.2 Remarks

1. Cleaning

1) For cleaning of the upper drum (particularly video heads) use fine-woven cotton cloth or Kimwipe which alcohol soaks through. Regarding cleaning manner, do not move the cloth but turn the upper drum counterclockwise.

Note: Make sure not to move the cloth in the vertical direction to the video head, since it causes damage of the video heads.

2) For cleaning of parts of the tape transport system except the upper drum, use fine-woven cotton cloth or cotton stick in which alcohol soaks.

3) Before loading the deck with cassette tape, confirm that the cleaned parts are completely dry.

2. Applying oil and grease

1) For parts and points to apply oil and grease, refer to the exploded views of the mechanism assembly and chassis assembly. Table 1-9-2 specifies oil and grease to be used.

2) When oiling, clean the objective parts first and then apply one or two drop(s) of oil. Too much oiling causes rotary parts to slip because of oil leakage.

Classification	Name	Parts No.	Symbol in drawing
Grease	Moriton Grease No.1	MOS2-C	A
Oil	Cosmo Hydro HV56	COSMO-HV56	B

Table 1-9-2 Specific oil and grease to be used

3. Checkup

After replacement of the supply reel disk and tension band, make sure to inspect and adjust back tension according to the adjustment procedure of the deck section.

4. Replacement

For replacement parts which are supplied as assembly parts, they are indicated by "a" in the "Ass'y" column of the Table 1-9-1.

For their parts numbers, refer to the parts list of the mechanism assembly parts.

1.10 LOCATION OF MAIN BOARDS

1. Deck section and Camera section (1)

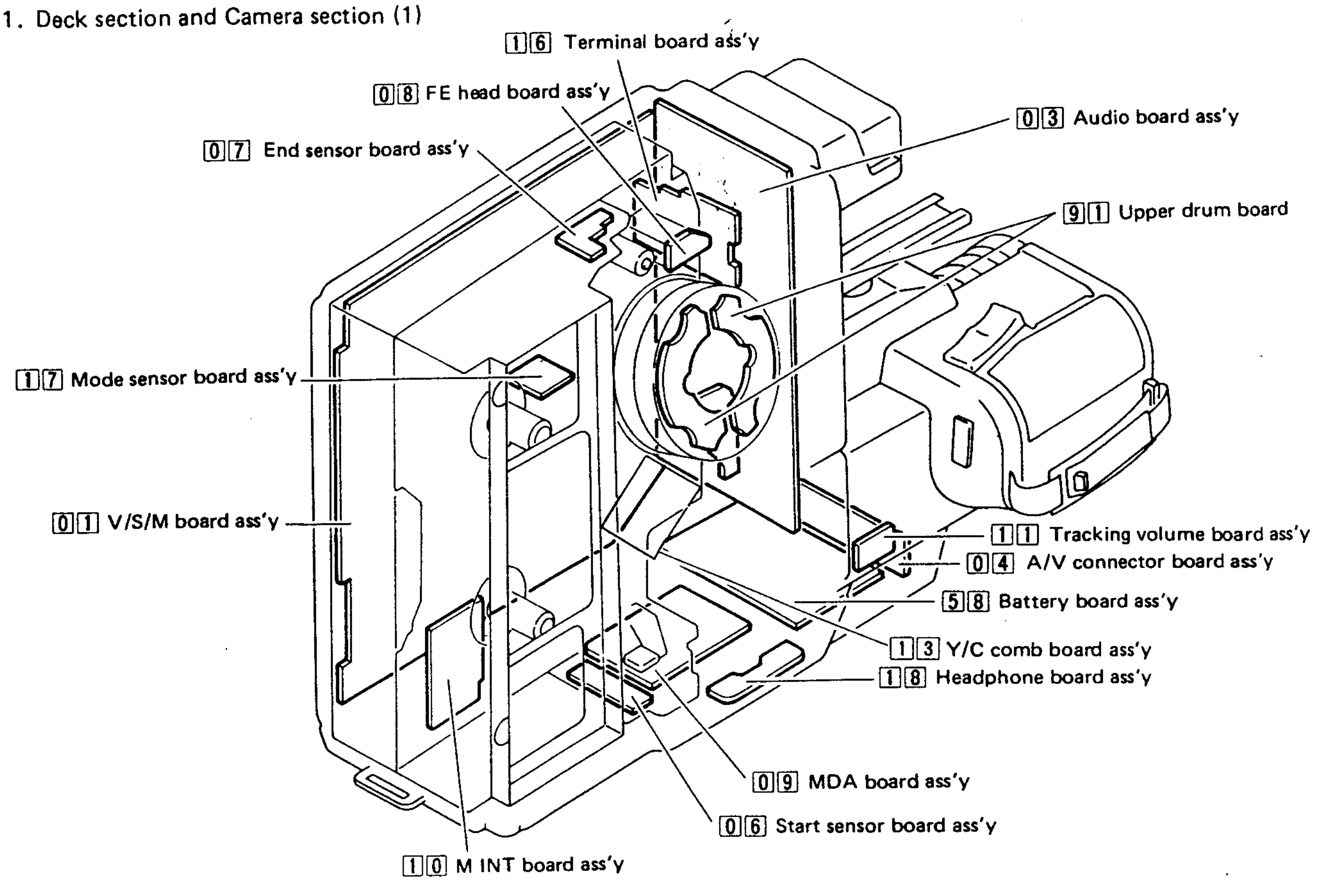

16 Terminal board ass'y
08 FE head board ass'y
03 Audio board ass'y
07 End sensor board ass'y
91 Upper drum board
17 Mode sensor board ass'y
01 V/S/M board ass'y
11 Tracking volume board ass'y
04 A/V connector board ass'y
58 Battery board ass'y
13 Y/C comb board ass'y
18 Headphone board ass'y
09 MDA board ass'y
06 Start sensor board ass'y
10 M INT board ass'y

Fig. 1-10-1 Location of main boards

2. Deck section and Camera section (2)

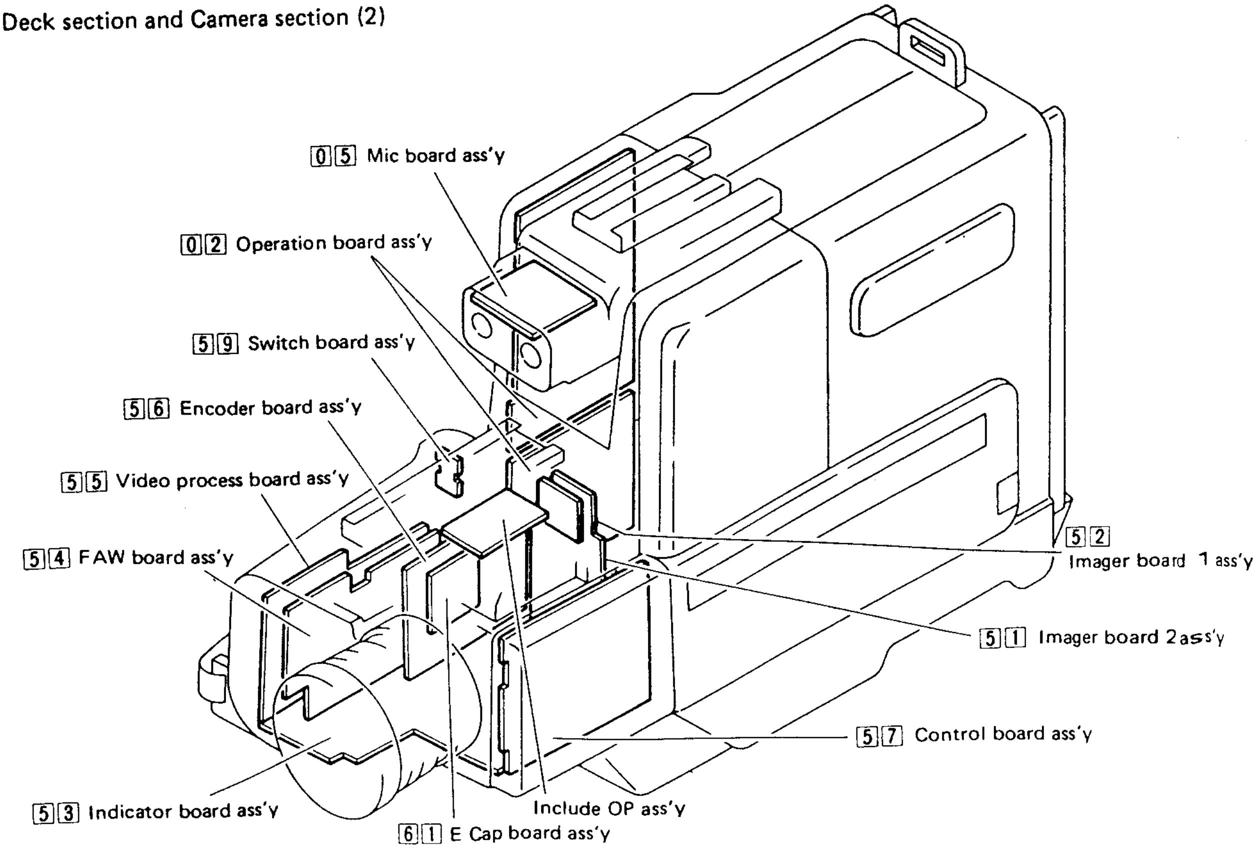

05 Mic board ass'y
02 Operation board ass'y
59 Switch board ass'y
56 Encoder board ass'y
55 Video process board ass'y
54 FAW board ass'y
52 Imager board 1 ass'y
51 Imager board 2ass'y
57 Control board ass'y
53 Indicator board ass'y
Include OP ass'y
61 E Cap board ass'y

Fig. 1-10-2 Deck section and Camera section (2)

SECTION 2
DECK SECTION ADJUSTMENT

2.1 PREPARATONS

2.1.1 Precautions

Electrical adjustments are generally necessary after replacing worn mechanical parts or video heads because of interrelationship between those parts and various electrical circuits.
In the event of malfunction of electrical circuits, troubleshooting with the aid of proper test instruments must be done first, and then, commence necessary repair, replacement, and adjustment, etc.

For adjustment of electrical circuits equipped with trimming resistors, replace those necessary for the adjustment with variable resistors only while servicing.

2.1.2 Hookup of deck section

When adjusting the deck section, hook it up as shown in Fig. 2-1-1 by using patch cords.

Note: 1) To show the Rehearsal image on a video monitor, connect a shorting wire between the A/V connectors terminal and the chassis of the deck section.

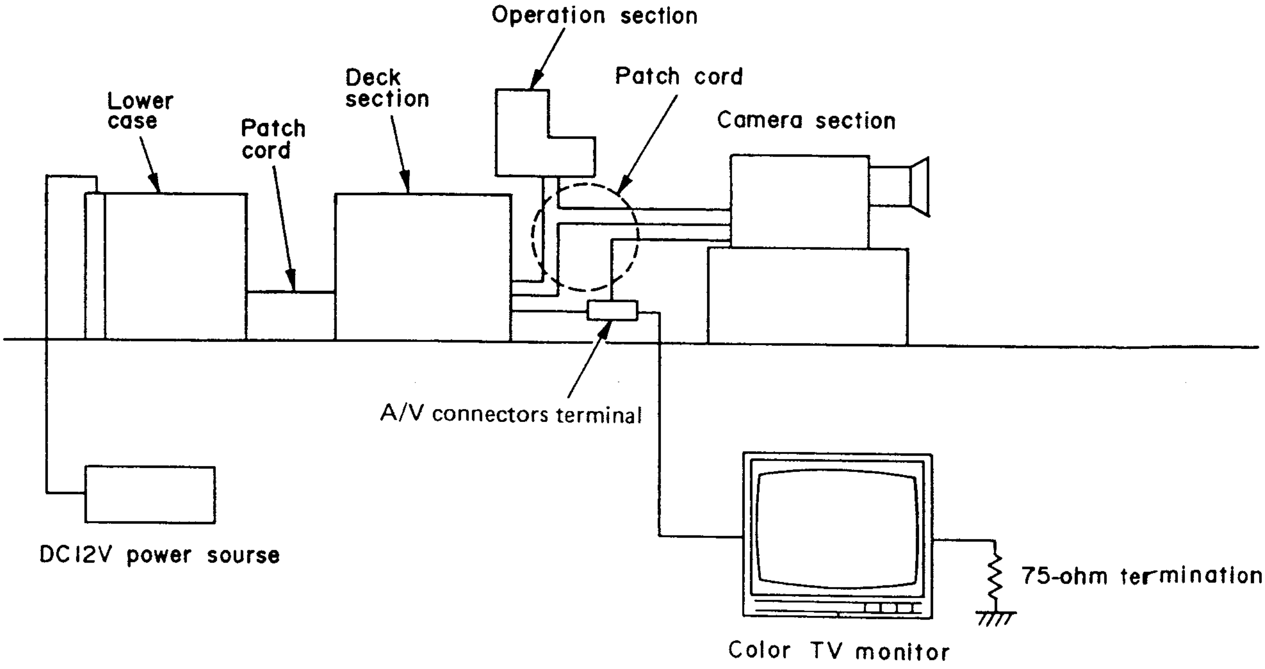

Operation section
Deck section
Patch cord
Lower case
Patch cord
Camera section
A/V connectors terminal
DC12V power sourse
75-ohm termination
Color TV monitor

Fig. 2-1-1 Deck section adjustment

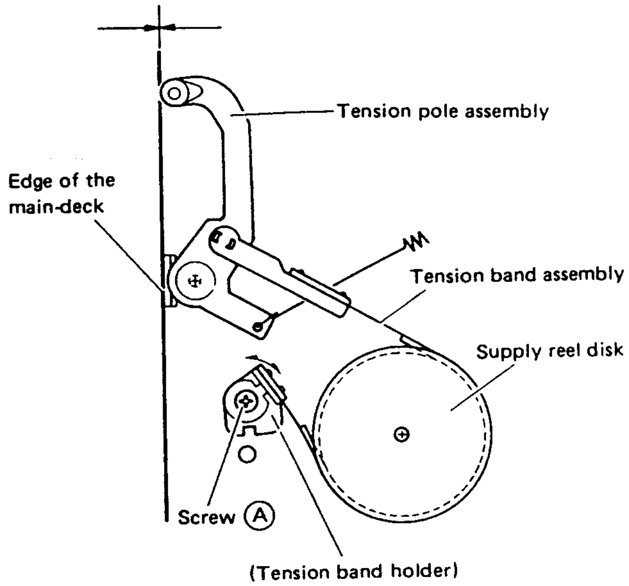
2.2 MECHACON CIRCUIT ($\boxed{0}\boxed{1}$ V/S/M board)

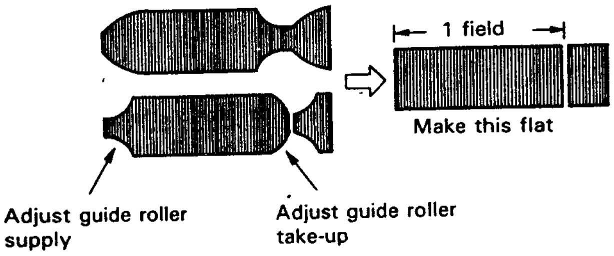
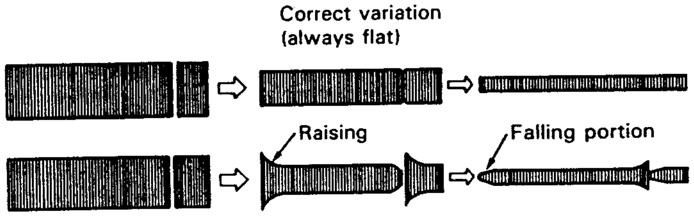
Note: Unless otherwise specified, all adjustment parts and test points are located on the V/S/M board.

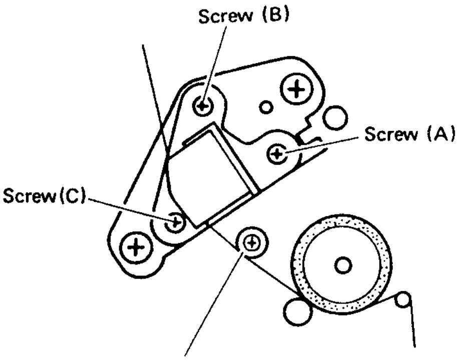
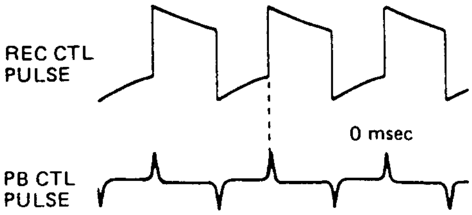
No.	Item	Mode & Signal	Check Point	Adjustment Parts	Procedure
			Waveform & Adjustment		
1	Low battery warning	• Camera input • REC • S-mode • ST-120 tape (leader portion)	• LCD of operation unit	• R592 (BATT DOWN ADJ)	1) Supply 12 V DC from the DC power supply unit to the battery terminal. 2) Adjust R592 so that "BATTERY" indication appears on the LCD screen when the supplied DC voltage is 11.0 V. 3) Raise the DC voltage to 12 V once, and drop it to 11.0 V again to confirm that the "BATTERY" is displayed on the screen within 5 seconds. If it doesn't appear, adjust R592 once more.
2	Audio output level	• EXT. input • E-E • ALC SW: OFF • Audio mode SW: Hi-Fi	• Audio output	• R4 (L-ch) • R5 (R-ch) $\boxed{0}\boxed{2}$ OPERATION	1) Supply −8 dBs (1 kHz) signal to the LINE IN terminal. 2) Set the Hi-Fi REC level control (R3) to its center position, and adjust R4 and R5 so that audio output level becomes −6 dBs for both R and L channels.
3	Audio level indicator	• EXT. input • E-E • ALC SW: OFF • Audio mode SW: Hi-Fi	• Audio level indicator	• R7 (L-ch) • R8 (R-ch) $\boxed{0}\boxed{2}$ OPERATION	1) In the same manner as the above item 2, adjust R7 and R8 respectively so that the audio level indicator is darkened up to 0 dBs for both R and L channels. **Note:** Set R7 and R8 to the position where the indicator reads −1 dB to 0 dB for the both channels.

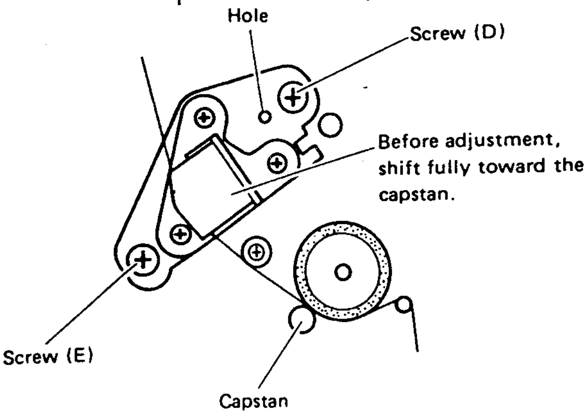
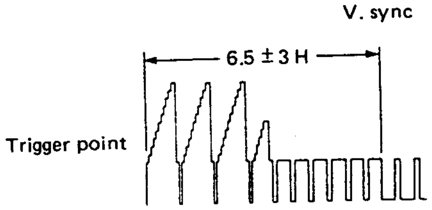
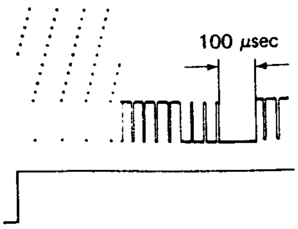
2.3 SERVO & INTERCHANGEABILITY ($\boxed{0}\boxed{1}$ V/S/M board & Mechanism)

Note: After changing the whole drum ass'y or the upper drum, the following adjustments must be performed.

No.	Item	Mode & Signal	Test Point	Adjustment Parts	Procedure
			Waveform & Adjustment		
1	Back tension		 Tension pole assembly Edge of the main-deck Tension band assembly Supply reel disk Screw Ⓐ (Tension band holder) Fig. 2-3-1 Tension pole position		1) Without a tape, set for PLAY mode. 2) Confirm that the tension pole is aligned to the edge of the main deck as shown in Fig. 2-3-1. 3) If necessary, loosen screw Ⓐ a little bit and adjust the tension band holder position. **Notes 1:** (1) For service procedures that call for operation of the set without a tape cassette, perform as below. (2) Disable the photo transistor sensors (END/START SENSOR) on the main-deck by covering with opaque covers. (3) The desired modes can be obtained by using the operation switches. **Notes 2:** (1) If self-recording or playback picture is abnormal, check the back tension value. (2) Use the back tension cassette gauge and set for the REC mode. (3) Confirm the indication is within 40 ± 6 gf-cm. (4) If necessary, replace the tension band ass'y. Severe variation may necessitate replacing the supply reel disk.

No.	Item	Mode & Signal	Test Point Waveform & Adjustment	Adjustment Parts	Procedure
2	Tape pattern	•MH-2 stair step	•TP6 (PB FM OUT) •TP411 (DRUM FF) $\boxed{0}\boxed{1}$ V/S/M	•Supply/take-up Guide rollers	1) Connect the oscilloscope to TP6. Trigger the oscilloscope externally with TP411 and set for the trigger slope to minus (–). 2) Play stairstep portion of the alignment tape MH-2. 3) Adjust the Tracking CTL for maximum FM output level. While observing the FM waveform, turn the supply on take-up guide roller to get a flat waveform by 1.25 m/m hexagonal wrench. **Note:** To avoid damaging the tape, turn the guide rollers slowly. 4) While varying the Tracking CTL for maximum to minimum FM level, confirm FM waveform is always flat. If there is falling or raising portions, stop turning the Tracking CTL and perform fine adjustment of supply or take-up guide roller height so that waveform is as flat as possible. Repeat step (4) several times. 5) Set for stop mode and then for playback mode again, since the height of guide rollers may be move during adjustment. Confirm, when varying the Tracking CTL, FM waveform variation is always flat. 6) Use a self-recording tape and perform recording and playback. Confirm FM waveform variation is flat when varying the Tracking CTL. 7) During the above adjustment, confirm that there is no wrinkles or bend of the tape at the impedance roller or take-up guide pole when performing loading/unloading, search rewind or play mode from search rewind. If necessary, adjust height of the impedance roller or angle of the A/C head (refer to next).
			 1 field Make this flat Adjust guide roller supply Adjust guide roller take-up **Fig. 2-3-2** Tape pattern adjustment-1  Correct variation (always flat) Raising Falling portion **Fig. 2-3-3** Tape pattern adjustment-2		
		•REC then PB			

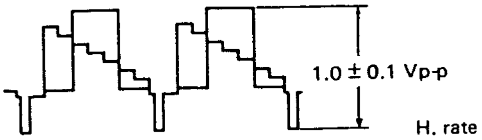
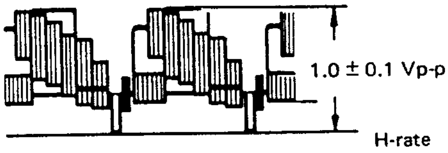
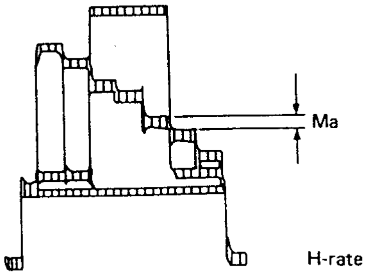
No.	Item	Mode & Signal	Test Point	Adjustment Parts	Procedure
			Waveform & Adjustment		
3	A/CTL head height and azimuth	• MH-2 7 kHz (Stairstep)	• AUDIO OUT terminal  **Fig. 2-3-4** A/C head inclination	• A/CTL head	**Note:** Incorrect A/C head height can impair audio signal-to-noise ratio when playing back a pre-recorded tape. 1) For A/C head inclination, adjust screw (A) so that small tape wrinkles are not produced at the take-up guide pole. Turn screw (A) clockwise so that the tape wrinkles are apparent with the lower flange of the take-up guide pole, then turn screw (A) counterclockwise so that the wrinkles smooth out. 2) Adjust azimuth with screw (B). 3) For A/C head height, turn screws (A), (B) and (C) in succession by small and equal increments at a time and adjust for maximum audio output level.
4	Tracking preset	• REC then PB • Tracking CTL : Click position	• TP401 (CTL PULSE) • TP411 (DRUM FF) for trigger $\boxed{0}\boxed{1}$ V/S/M  **Fig. 2-3-5** Tracking preset	• R425 (TRACKING PRESET)	1) Connect the oscilloscope to TP401 and TP411 which is for external trigger. 2) Use the self-recording tape and perform recording. During recording, make a note of the phase of TP401 raising point. 3) Set the Tracking CTL to the click position and play the portion recorded in the step 2). Adjust R425 so that the raising pulse of PB control signal coincides with the phase of noted recording control signal.

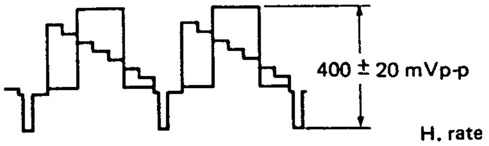
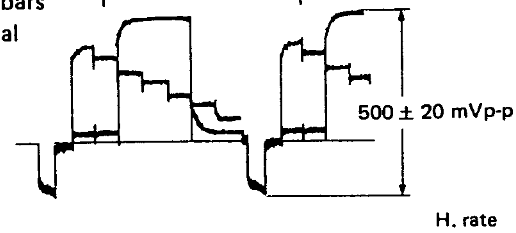
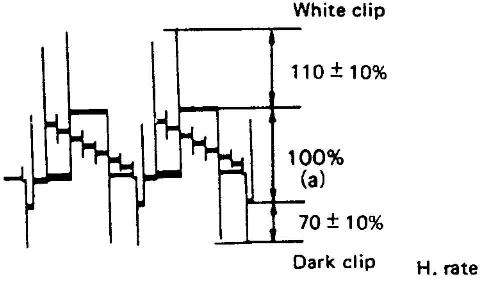
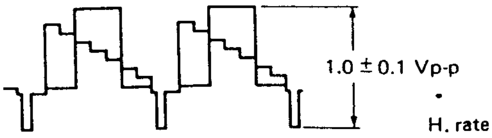
No.	Item	Mode & Signal	Test Point	Adjustment Parts	Procedure
			Waveform & Adjustment		
5	Control head phase (X value)	• MH-2 Stairstep • Tracking CTL: Click position	• TP6 (PB FM OUT) • TP411 (DRUM FF) for trigger 0 1 V/S/M  Hole Screw (D) Before adjustment, shift fully toward the capstan. Screw (E) Capstan **Fig. 2-3-6** CTL head phase adjustment	• CTL head phase	1) Connect the oscilloscope to TP6 and TP411 for external trigger. 2) Set the TRACKING knob to AUTO (center detent position). 3) Loosen screws (D) and (E) a little bit, then cover screw (D) with the A/CTL head positioning tool and set the pin of the tool into the hole next to screw (D). 4) Turn the tool counterclockwise to shift the A/C head fully in the direction of the capstan, and then gradually turn the tool clockwise and observe the FM envelope output. 5) Set the A/C head at the point of the first output peak.
6	PB switching point	• MH-2 Stairstep • Tracking CTL: Click position	• TP10 (VIDEO OUT) • TP411 (DRUM FF) for trigger 0 1 V/S/M  **Fig. 2-3-7** PB switching point	• R427 (PB SWITCHING POINT) 0 1 V/S/M	1) Connect the oscilloscope to TP10 on the VIDEO board and TP411 which is for external trigger, and play stairstep portion of MH-2. 2) When the Tracking CTL is at center position, adjust R427 so that the trigger point becomes 6.5 before V. sync.
7	Disorder of V. pulse	• Ext. input • Grey scale • REC then PB	• TP10 (VIDEO OUT) 0 1 V/S/M  **Fig. 2-3-8** Discorder of V. pulse	• R428 (V. PULSE) 0 1 V/S/M	1) Connect the oscilloscope to TP10. 2) Record the Grey scale signal and play it back in the Still mode. 3) Adjust R428 so that signal level becomes 100 μsec.

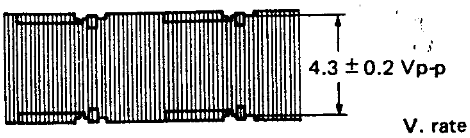
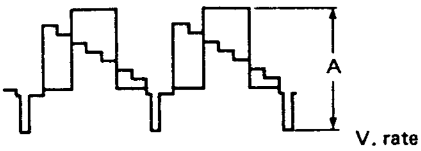
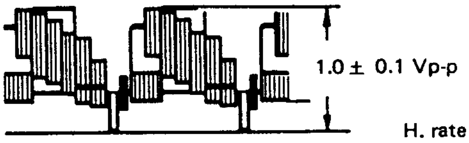
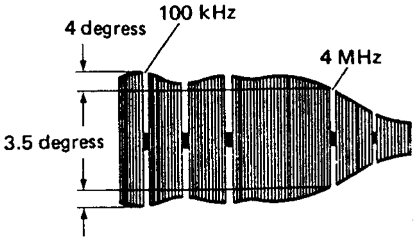
2.4 DECK VIDEO CIRCUIT (01 V/S/M board and 13 Y/C COMB board)

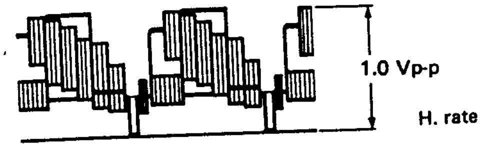
2.4.1 S-VHS Y (luminance) circuit

Note: 1) The following are the whole adjustment steps for S-VHS Y circuit in the order of adjustment.
Keep in mind that, if the previous adjustment is incorrect, the following adjustment will not be achieved correctl
2) Unless otherwise specified, playback and recording modes are S-VHS mode, and all test points and adjustment part are located on the 01 V/S/M board.
3) S-VHS switch must always be "ON (AUTO)" and S-VHS cassette tape must be used.

No.	Item	Mode & Signal	Check Point	Adjustment Parts	Procedure
			Waveform & Adjustment		
1	Y/C E-E level	• Ext. input no signal • E-E • Y/C separator • Color bars Y signal	• TP10 (VIDEO OUT)	• R111 (EXT. SEP Y LEVEL)	1) Supply the Y signal to TP1 on V/S/M boar from Y/C separator. 2) Connect the oscilloscope to TP10. 3) Adjust R111 so that signal level becom 1.0 Vp-p.
			 Fig. 2-4-1(A) Y/C E-E level (1)		
		• Ext. input • E-E • Color bars		• R11 (EXT. COMP Y LEVEL) 13 Y/C COMB	4) Disconnect the Y signal from TP1. 5) Supply the color bars signal to A/V input. 6) Adjust R11 so that signal level becom 1.0 Vp-p.
			 Fig. 2-4-1(B) Y/C E-E level (2)		
2	Y-comb adj.	• Ext. input • E-E • Color bars	• TP4 (Y-COMB) 13 Y/C COMB	• R22 (Y-COMB 1) • R24 (Y-COMB 2) • R33 (Y-COMB 3) 13 Y/C COMB	1) Connect the oscilloscope to TP4. 2) Adjust R22 and R24 to minimize mager level. 3) After, then adjust R33 to minimize mage level.
			 Fig. 2-4-2 Y comb adj.		
3	Processor lim. bal	• EXT. input no signal • E-E	• TP32 (PROCESSOR LIM. BAL.)	• R179 (PROCESSOR LIM. BAL.)	1) Connect the oscilloscope to TP32. 2) Adjust R179 so that DC level beco 3.48 V.

No.	Item	Mode & Signal	Check Point	Adjustment Parts	Procedure
			Waveform & Adjustment		
4	Processor input level	• Ext. input • E-E • Color bars	• TP31 (PROCESSOR IN. LEVEL)  Fig. 2-4-3 Processor input level	• R191 (PROCESSOR IN. LEVEL)	1) Connect the oscilloscope to TP31. 2) Adjust R191 so that signal level becomes 400 mVp-p.
5	Processor output level	• Ext. input no signal • E-E • Y/C separator • Color bars Y signal	• TP27 (PROCESSOR OUT LEVEL)  Fig. 2-3-4 Processor output level	• R188 (PROCESSOR OUT LEVEL)	1) Supply the Y signal to TP1 on V/S/M board from Y/C separator. 2) Connect the oscilloscope to TP27. 3) Adjust R188 so that signal level becomes 500 mVp-p.
6	White and dard clip	• Ext. input • E-E • Color bars	• TP34 (EMPHASIS)  Fig. 2-4-5 W/D clip	• R106 (WHITE CLIP) • R109 (DARK CLIP)	1) Connect the oscilloscope to TP34. 2) Adjust R106 and R109 so that white clip becomes 110% and dark clip becomes 70%.
7	Carrier deviation	• Ext. input no signal • E-E • Y/C separator • Color bars Y signal • REC then PB	• TP33 (REC FM) • TP10 (VIDEO OUT)  Fig. 2-4-6 Carrier deviation	• R123 (CARRIER) • R119 (DEVIATION)	1) Connect the frequency counter to TP33. 2) Adjust R123 so that frequency becomes 5.4 MHz ± 50 kHz. 3) Supply the Y signal to TP1 on V/S/M board from Y/C separator. 4) Recording this signal and play the same position. 5) Adjust R119 so that signal level becomes 1.0 Vp-p.

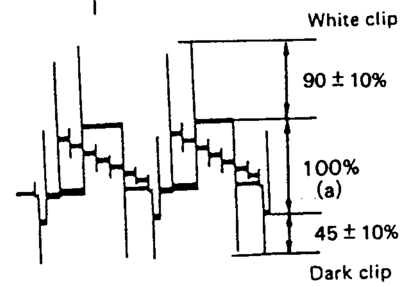
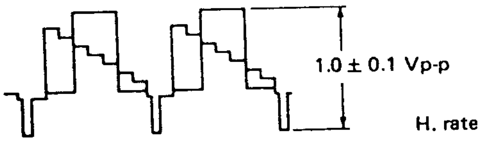
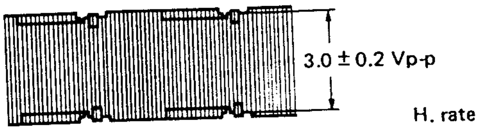
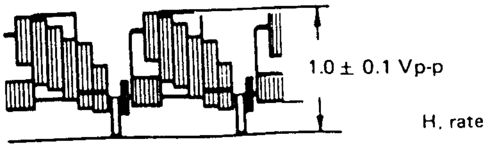
No.	Item	Mode & Signal	Check Point	Adjustment Parts	Procedure
			Waveform & Adjustment		
8	REC FM level	• Ext. input • REC • Color bars	•TP702 (REC FM)  Fig. 2-4-7 REC FM level	• R788 (REC FM LEVEL)	1) Connect the oscilloscope to TP702. 2) Adjust R788 so that the pedestal portion becomes 4.3 Vp-p.
9	CCD level	• Ext. input • Color bars • REC then PB	•TP26 (1H DL PB Y) •TP25 (CLAMP Y IN)  Fig. 2-4-8 CCD level	•R204 (CCD LEVEL)	1) Connect CH1 of a dual trace oscilloscope to TP26 and CH2 to TP25. 2) Set VOL/DIV controls of both channels to the same range. 3) Invert CH2 and use ADD mode. 4) Adjust R204 to obtain the same signal level "A" at TP26 and TP25.
10	PB Y level	• Ext. input • Color bars • REC then PB	•TP10 (VIDEO OUT)  Fig. 2-4-9 PB Y level	•R144 (PB Y LEVEL)	1) Connect the oscilloscope to TP10. 2) Record the color bar signal. 3) Play back the recorded signal and adjust R144 to obtain 1.0 Vp-p as the Y level.
11	Video EQ	• Camera input • Video sweep • REC then PB	• TP51 (Y OUT) •TP411 (DRUM FF) for trigger  Fig. 2-4-10 Video EQ	• R735 (VIDEO EQ)	1) Set the markers of color sweep generator to to 100 kHz and 4 MHz, respectively. 2) Supply the composite signal to pin 1 of CN5 on V/M/S board. 3) Record this signal and play the same portion. 4) Connect the oscilloscope to TP51 and TP411, the latter of which is for external trigger. 5) Set 100 kHz level for 4 graduations on oscilloscope screen. 6) Adjust R735 so that the 4 MHz level comes for 3.5 graduations on the oscilloscope. Note: If this adjustment is not correct, B/W image reversal (tearing) may occur during REC/PB of scenes with strong light/dark contrast.

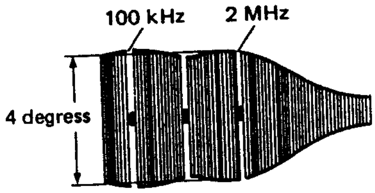
No.	Item	Mode & Signal	Check Point	Adjustment Parts	Procedure
			Waveform & Adjustment		
12	Video out level	• Ext. input • Color bars • REC then PB	• TP10 (VIDEO OUT)  Fig. 2-4-11 Video out level	• R63 (VIDEO OUT LEVEL)	1) Connect the oscilloscope to TP10. 2) Adjust R63 so that Y level becomes 1.0 Vp-p.

2.4.2 Conventional VHS Y (luminance) circuit

Note: 1) The following are the adjustment steps for conventional Y circuit in the order of adjustment. Keep in mind that if the previous adjustment is incorrect, the following adjustment will not be adjusted correctly.

2) Unless otherwise specified, playback and recording modes are conventional VHS mode, and test points and adjustment parts are located on the [0][1] V/S/M board.

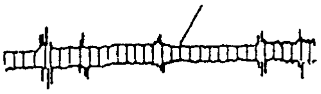
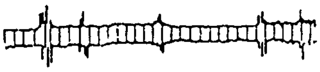
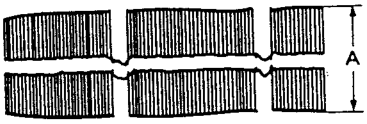
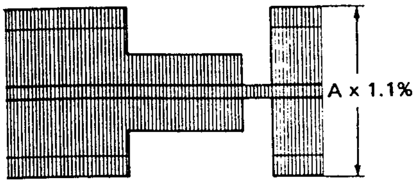
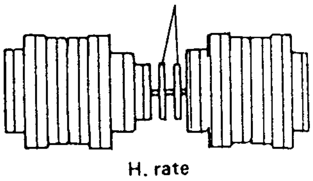
No.	Item	Mode & Signal	Check Point	Adjustment Parts	Procedure
			Waveform & Adjustment		
1	White and dark clip	• Ext. input • E-E • Color bars	• TP34 (EM-PHASIS)  White clip 90 ± 10% 100% (a) 45 ± 10% Dark clip H. rate Fig. 2-4-12 W/D clip	• R107 (WHITE CLIP) • R108 (DARK CLIP)	1) Connect the oscilloscope to TP34. 2) Adjust R107 and R108 so that white clip becomes 90% and dark clip becomes 45%.
2	Carrier deviation	• Ext. input no signal • E-E • Y/C separator • Color bars Y signal • REC then PB	• TP33 (REC FM) • TP10 (VIDEO OUT)  Fig. 2-4-13 Carrier deviation	• R124 (CARRIER) • R120 (DEVIATION)	1) Connect the frequency counter to TP33. 2) Adjust R124 so that frequency becomes 3.8 MHz ± 50 kHz. 3) Record color bars signal and play the same position. 4) Adjust R120 so that signal becomes 1.0 Vp-p.
3	REC FM level	• Ext. input • REC • Color bars	• TP702 (REC FM)  Fig. 2-4-14 REC FM level	• R796 (N-REC FM LEVEL)	1) Connect the oscilloscope to TP702. 2) Adjust R796 so that the pedestal portion becomes 3.0 Vp-p.
4	PB Y level	• Ext. input • Color bars • REC the PB	• TP10 (VIDEO OUT)  Fig. 2-4-15 PB Y level	• R143 (N-PB Y LEVEL)	1) Connect the oscilloscope to TP10. 2) Record the colour bar signal. 3) Play back the recorded signal and adjust R143 to obtain 1.0 Vp-p as the Y level.

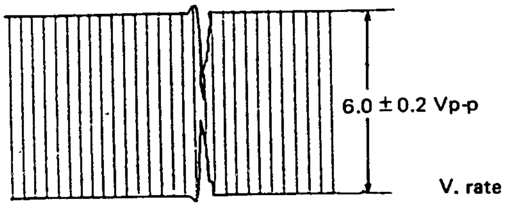
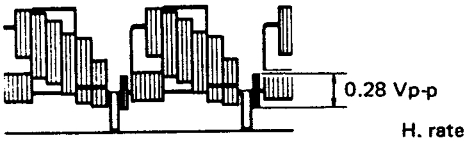
No.	Item	Mode & Signal	Check Point	Adjustment Parts	Procedure
			Waveform & Adjustment		
5	Video EQ	• Camera input • Video sweep • REC ten PB	• TP51 (Y OUT) • TP411 (DRUM FF) for trigger	• R757 (N-VIDEO EQ)	1) Set the markers of color sweep generator to to 100 kHz and 2 MHz, respectively. 2) Supply the composite signal to pin 1 of CN5. 3) Record this signal and play the same portion. 4) Connect the oscilloscope to TP51 and TP411, the latter of which is for external trigger. 5) Set 100 kHz level for 4 graduations on oscilloscope screen. 6) Adjust R757 so that the 2 MHz level comes for 4 graduations on the oscilloscope. **Note:** If this adjustment is not correct, B/W image reversal (tearing) may occur during REC/PB of scenes with strong light/dark contrast.
			 **Fig. 2-4-16** Video EQ		

2.4.3 Color circuit

Note: 1) The color circuit is common to both conventional and S-VHS and the following are the whole adjustment steps for C circuit in the order of adjustments. Keep in mind that if the previous adjustment is incorrect, the following adjustment will not be achieved correctly.

2) Unless otherwise specified, playback and recording modes are S-VHS mode, and all test points and adjustment parts are located on the $\boxed{0}\boxed{1}$ V/S/M board.

No.	Item	Mode & Signal	Check Point	Adjustment Parts	Procedure
			Waveform & Adjustment		
1	C-comb adj. 1	• Ext. input • E-E • Color bars	• TP2 (C-COMB) • TP3 (2H DL COLOR) $\boxed{1}\boxed{3}$ Y/C COMB Adjust to minimum.  V. rate Fig. 2-4-17 C-comb adj. (1)	• R5 (2H DL COLOR 1) • L2 (2H DL COLOR 2) $\boxed{1}\boxed{3}$ Y/C COMB	1) Connect CH1 of a dual trace oscilloscope to TP2 and CH2 to TP3. 2) Set VOL/DIV controls of both channels to the same range. 3) Invert CH2 and use ADD mode. 4) Alternately adjust R5 and L2 for minimum level.
2	C-comb adj. 2	• Ext. input • E-E • Color bars	• TP1 (4H DL COLOR) • TP3 (2H DL COLOR) $\boxed{1}\boxed{3}$ Y/C COMB  V. rate Fig. 2-4-18 C-comb adj. (2)	• R7 (4H DL COLOR 1) • L4 (4H DL COLOR 2) $\boxed{1}\boxed{3}$ Y/C COMB	1) Connect CH1 of a dual trace oscilloscope to TP1 and CH2 to TP3. 2) Set VOL/DIV controls of both channels to the same range. 3) Invert CH1 and use ADD mode. 4) Alternately adjust R7 and L4 for minimum level.
3	REC color level	• MH-2H PB • Color bars • Ext. input • Color bars • REC then PB  Fig. 2-4-19(A) REC color level 1	• TP8 (REC COLOR) • TP411 (DRUM FF)  V. rate Fig. 2-4-19(B) REC color level 2	• R801 (REC COLOR LEVEL)	1) Play the color bar portion of MH-2H. Connect the oscilloscope to TP8 and TP411 which is for EXT. trigger. 2) Turn the TRACKING control for maximum color level. 3) Note of the higher channel level for A. (Fig. 2-4-19(A)). 4) Record the color bars signal and then play the same portion. 5) Confirm that the same channel level is A x 1.1%. (Fig. 2-4-19(B)) 6) If it is out of the above specification, adjust R801 in recording and repeat steps 4 and 5).
4	Pilot burst level	• Ext. input • E-E • Color level	• TP301 (PILOT BURST) Same level  H. rate Fig. 2-4-20 REC color level	• R300 (PILOT BURST LEVEL)	1) Connect the oscilloscope to TP301. 2) Adjust R300 so that video burst level becomes the same PILOT burst level.

No.	Item	Mode & Signal	Check Point	Adjustment Parts	Procedure
			Waveform & Adjustment		
5	Color det. level	• Ext. input no signal • E-E • Y/C separate color bars signal	• TP901 (COLOR DET.)	• R904 (COLOR DET. LEVEL)	1) Supply the Y signal to TP1 and C signal to pin 3 of CN7. 2) Connect the oscilloscope to TP901. 3) Adjust R904 so that signal level becomes 6.0 Vp-p.
			 Fig. 2-4-21 C. det level		
6	Video output burst level	• Ext. input • REC then PB • Color level	• TP10 (VIDEO OUT)	• R55 (VIDEO OUT BURST LEVEL)	1) Connect the oscilloscope to TP10. 2) Record the color bars signal and then play the same portion. 3) Adjust R55 so that signal level becomes 0.28 Vp-p.
			 Fig. 2-4-22 Burst level		

2.5 AUDIO CIRCUIT (03 AUDIO board)

2.5.1 Normal audio circuit

Note: Unless otherwise specified, all test points and adjustment parts are located on the AUDIO board.

No.	Item	Mode & Signal	Check Point	Adjustment Parts	Procedure
			Waveform & Adjustment		
1	Bias level	• Input no signal • S-mode • REC	• TP2 (HOT) • TP1 (GND)	• R7 (BIAS LEVEL)	1) Connect the audio tester between TP2 and TP1. 2) Adjust R7 to obtain 3.4 mVrms of the level.
2	Normal audio PB level	• N-mode • REC then PB • 1 kHz, –8 dBs input • Audio mode SW: NORMAL	• AUDIO OUT	• R15 (NA REC LEVEL)	1) Supply 1 kHz, –8 dBs sine wave to the AUDIO IN terminal. 2) Connect the audio tester to the AUDIO OUT terminal, and adjust R15 so that audio PB level becomes –6 dBs.

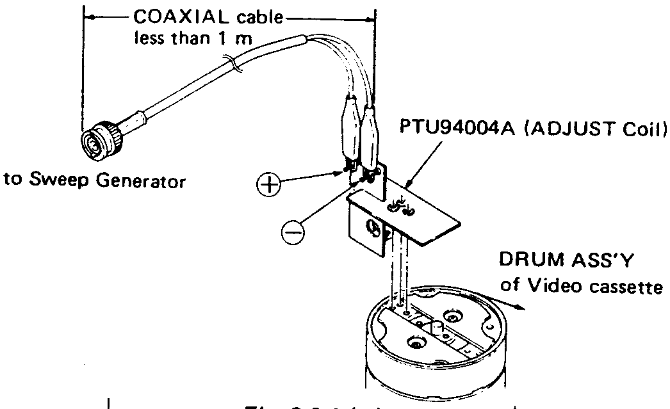
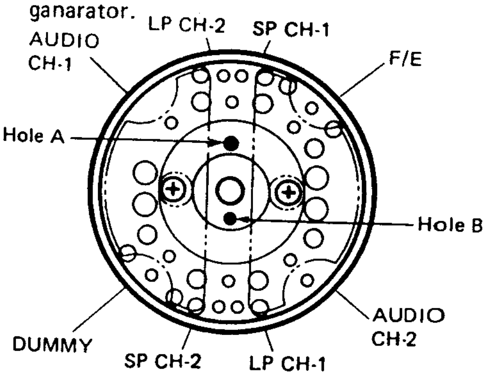
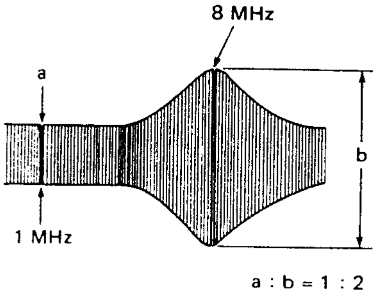
2.5.2 FM AUDIO circuit

Note: Unless otherwise specified, all test points and adjustment parts are located on the FM AUDIO board.

No.	Item	Mode & Signal	Check Point	Adjustment Parts	Procedure
			Waveform & Adjustment		
1	E-E level	• Line input • ALC SW: AUTO • Audio mode SW: Hi-Fi • STOP (E-E) mode	• AUDIO OUT	• R61 (E-E LEVEL [R]) • R63 (E-E LEVEL [L])	1) Supply 1 kHz, –8 dBs sine wave to the LINE IN terminal. 2) Adjust R61 (R-ch) and R63 (L-ch) so that audio output level becomes –6 dBs for R and L channels, respectively.
2	Hi-Fi PB level	• Line input • ALC SW: AUTO • Audio mode SW: Hi-Fi • N-mode • REC then PB	• AUDIO OUT	• R106 (Hi-Fi [L] PB LEVEL) • R107 (Hi-Fi [R] PB LEVEL)	1) Supply 1 kHz, –8 dBs sine wave to the LINE IN terminal, and record and play back the signal. 2) Confirm that audio output level in playback is –6 ± 1 dBs. If not, adjust R106 (L-ch) and R107 (R-ch) respectively until the specified value is obtained by repeating these steps 1 and 2).
3	Hi-Fi REC level	• Input no signal • N-mode • REC then PB	• TP3 (REC FM A)	• R117 (REC FM)	1) In REC mode, adjust R117 so that FM REC level at TP3 becomes 2.3 Vp-p. 2) Set the unit into the REC mode with no input signal for about 1 minute. 3) Connect the oscilloscope to TP4 and play back the recorded tape to observe it on the oscilloscope. 4) Externally synchronize the oscilloscope with the signal from TP411 (DRUM F F) of the V/S/M board, and read the minimum value of each PB FM level of CH-1 and CH-2. If each minimum value is out of the range between 40 and 60 mVp-p, perform fine adjustment of the above step 1) and repeat the following steps 2) through 4) until the value meets the standard.

2.6 PRE/REC CIRCUIT ($\boxed{0}\boxed{1}$ V/S/M board)

Note: Unless otherwise specified, all test points and adjustment parts are located on the V/S/M board.

No.	Item	Mode & Signal	Test Point Waveform & Adjustment	Adjustment Parts	Procedure
1	Video head resonance & Q (quality factor)	• RF sweep	 COAXIAL cable less than 1 m to Sweep Generator ⊕ ⊖ PTU94004A (ADJUST Coil) DRUM ASS'Y of Video cassette Fig. 2-6-1 (A)		1) Disconnect a connector of CN1 from MDA board. 2) Short TP708 and TP707 with shorting wire. 3) Supply a sweep genarator output to adjstment jig as shown in Fig. 2-6-1(A). 4) Trigger the oscilloscope externally with the signal form TRIGGER OUT of sweep ganarator.  LP CH-2 SP CH-1 AUDIO CH-1 F/E Hole A Hole B AUDIO CH-2 DUMMY SP CH-2 LP CH-1 Fig. 2-6-1 (B) Head position
			• TP706 (SP FM)	• C712 (SP CH1 f_0) • R710 (SP CH1 Q) • C710 (SP CH2 f_0) • R715 (SP CH2 Q)	5) Connect the oscilloscope to to TP706. 6) Short CN18 pin 2 on the V/S/M board and GND with shoring wire. 7) Short CN1 pin 1 on V/S/M board and A with shoring wire. Please set up as follows. (Table 2-6-1) 8) Adjust B to set the resonance point to 8 MHz. Use the 1 MHz region at graduation 2 of the oscilloscope scale. 9) Adjust C to position the 8 MHz portion at 4 of the oscilloscope graduation as shown in Fig. 2-6-1(C).
			• TP704 (LP FM)  8 MHz a b 1 MHz a : b = 1 : 2 Fig. 2-6-1 (C)	• C709 (LP CH1 f_0) • R713 (LP CH1 Q) • C711 (LP CH2 f_0) • R712 (LP CH2 Q)	10) Connect the oscilloscope to TP704. 11) Short CN18 pin 2 on the V/S/M board and TP708 with shorting wire. 12) Short CN1 pin 1 on V/S/M board and A with shoring wire. Please set up as follows. (Table 2-6-2) 13) Adjust B to set the resonance point to 8 MHz. Use the 1 MHz region at graduation 2 of the oscilloscope scale. 14) Adjust C to position the 8 MHz portion at 4 of the oscilloscope graduation as shown in Fig. 2-6-1(C).

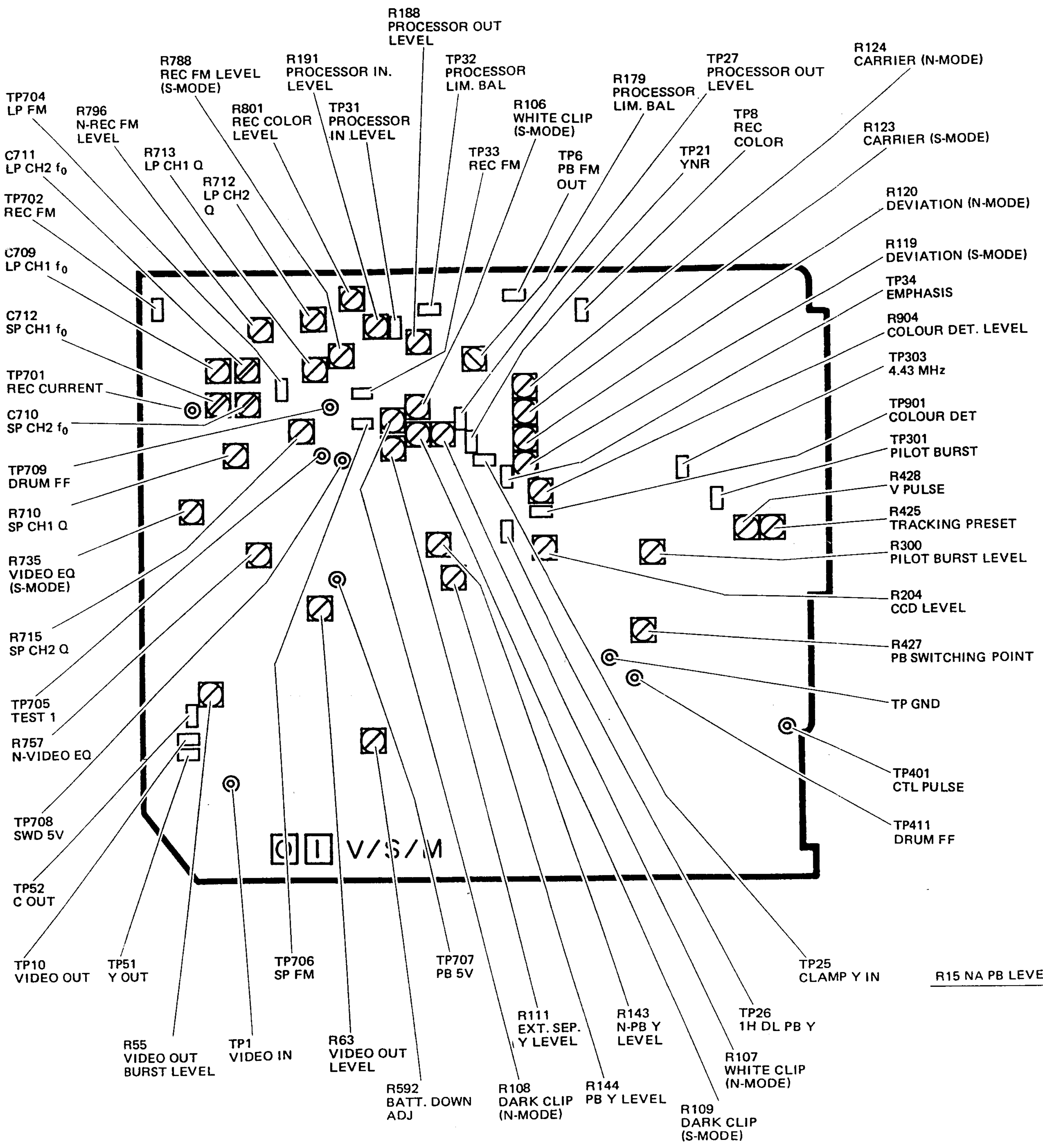
	A	B	C
CH1 SP	GND	C712	R710
CH2 SP	TP708	C710	R715

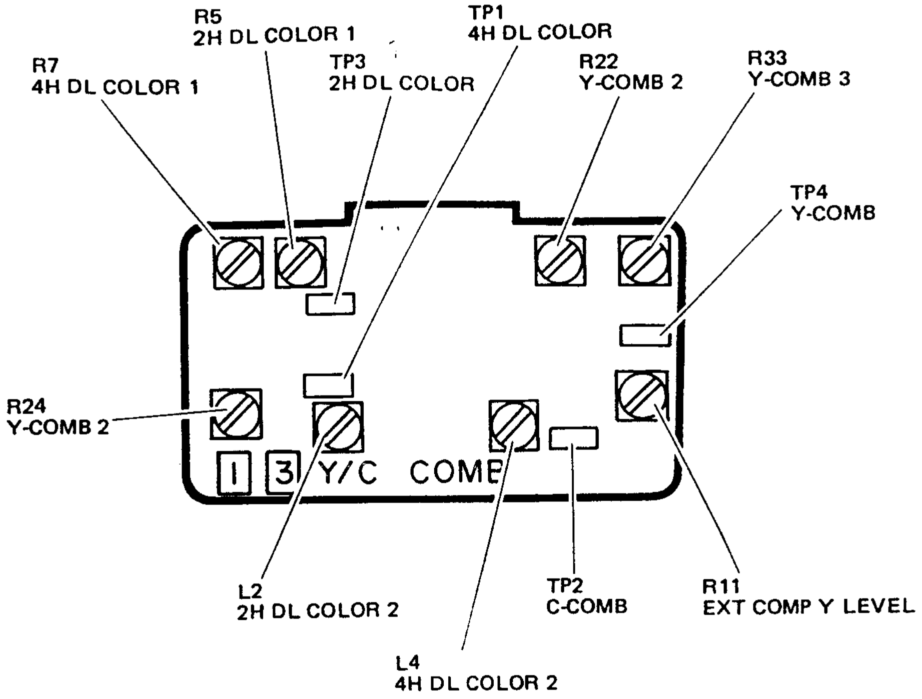
Table 2-6-1

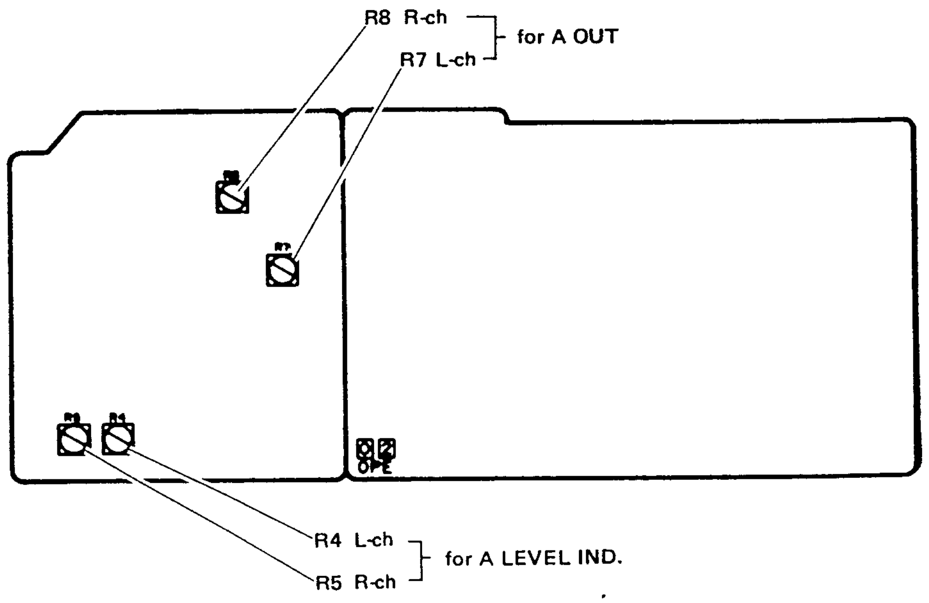
	A	B	C
CH1 LP	GND	C709	R713
CH2 LP	TP708	C711	R712

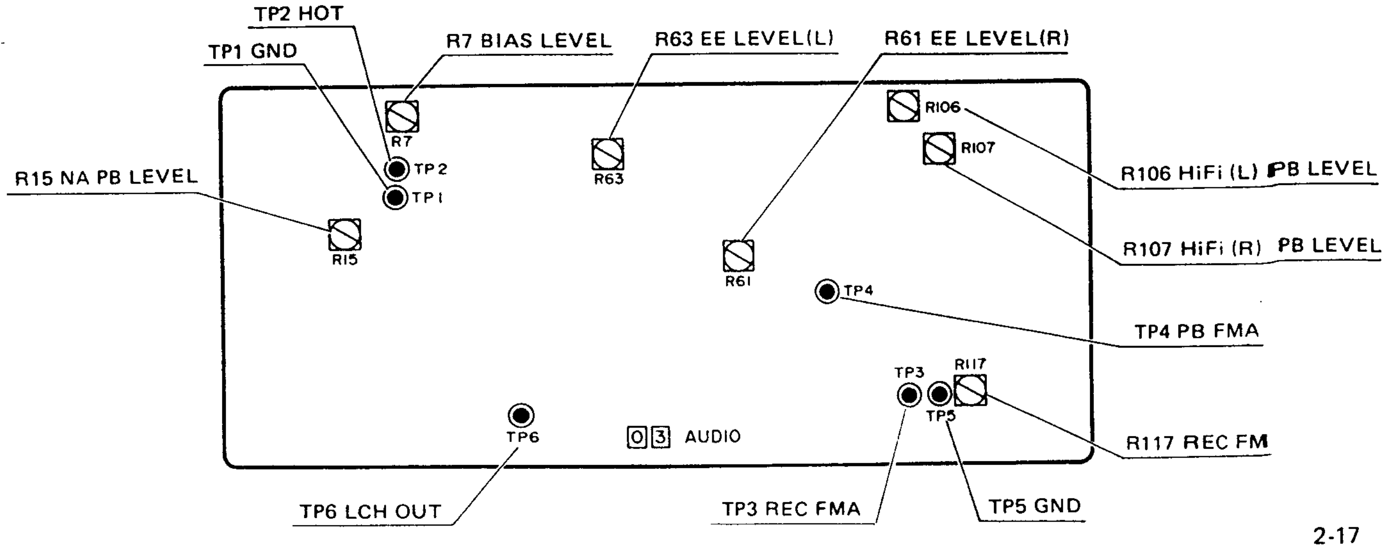
Table 2-6-2

- VR and TESTPOINT LOCATION (DECK SECTION)

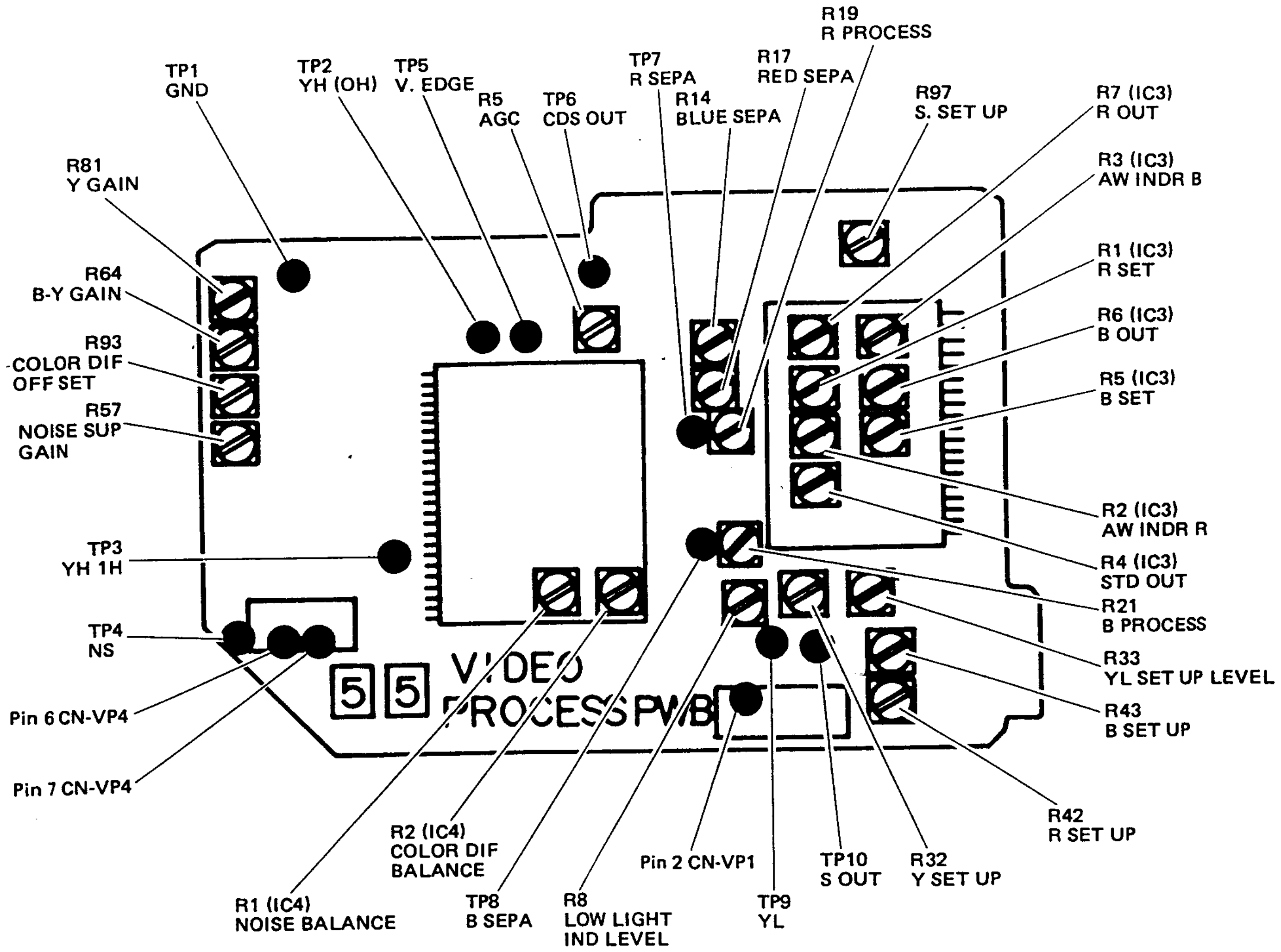

R188 PROCESSOR OUT LEVEL
R788 REC FM LEVEL (S-MODE)
R191 PROCESSOR IN. LEVEL
TP32 PROCESSOR LIM. BAL
TP27 PROCESSOR OUT LEVEL
R124 CARRIER (N-MODE)
TP704 LP FM
R796 N-REC FM LEVEL
R801 REC COLOR LEVEL
TP31 PROCESSOR IN LEVEL
R106 WHITE CLIP (S-MODE)
R179 PROCESSOR LIM. BAL
TP8 REC COLOR
R123 CARRIER (S-MODE)
C711 LP CH2 f0
R713 LP CH1 Q
TP33 REC FM
TP6 PB FM OUT
TP21 YNR
R712 LP CH2 Q
TP702 REC FM
R120 DEVIATION (N-MODE)
C709 LP CH1 f0
R119 DEVIATION (S-MODE)
TP34 EMPHASIS
C712 SP CH1 f0
R904 COLOUR DET. LEVEL
TP303 4.43 MHz
TP701 REC CURRENT
C710 SP CH2 f0
TP901 COLOUR DET
TP301 PILOT BURST
TP709 DRUM FF
R428 V PULSE
R710 SP CH1 Q
R425 TRACKING PRESET
R300 PILOT BURST LEVEL
R735 VIDEO EQ (S-MODE)
R204 CCD LEVEL
R715 SP CH2 Q
R427 PB SWITCHING POINT
TP705 TEST 1
TP GND
R757 N-VIDEO EQ
TP401 CTL PULSE
TP708 SWD 5V
TP411 DRUM FF
TP52 C OUT
01 V/S/M
TP10 VIDEO OUT
TP51 Y OUT
TP706 SP FM
TP707 PB 5V
TP25 CLAMP Y IN
R111 EXT. SEP. Y LEVEL
R143 N-PB Y LEVEL
TP26 1H DL PB Y
R55 VIDEO OUT BURST LEVEL
TP1 VIDEO IN
R63 VIDEO OUT LEVEL
R107 WHITE CLIP (N-MODE)
R592 BATT. DOWN ADJ
R108 DARK CLIP (N-MODE)
R144 PB Y LEVEL
R109 DARK CLIP (S-MODE)

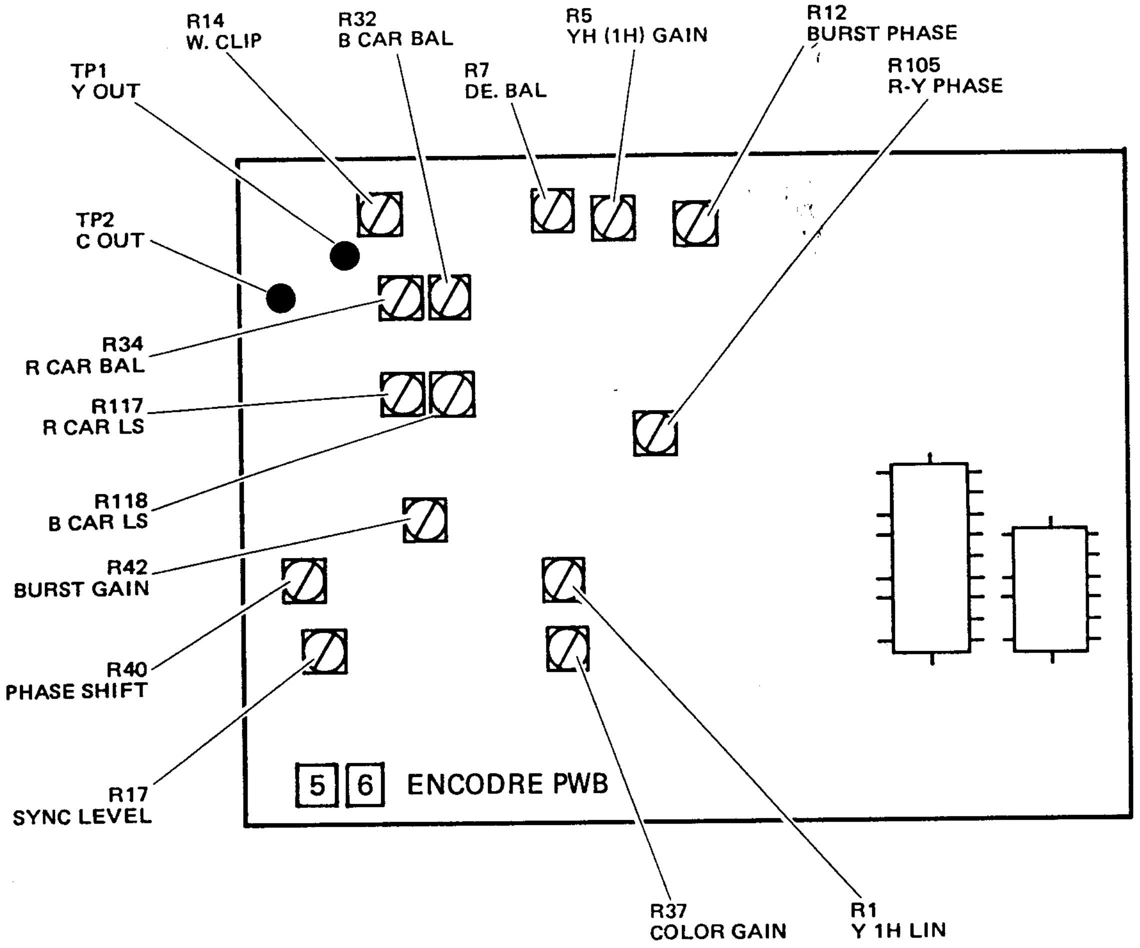

R5 2H DL COLOR 1
TP1 4H DL COLOR
R7 4H DL COLOR 1
TP3 2H DL COLOR
R22 Y-COMB 2
R33 Y-COMB 3
TP4 Y-COMB
R24 Y-COMB 2
13 Y/C COMB
L2 2H DL COLOR 2
TP2 C-COMB
R11 EXT COMP Y LEVEL
L4 4H DL COLOR 2

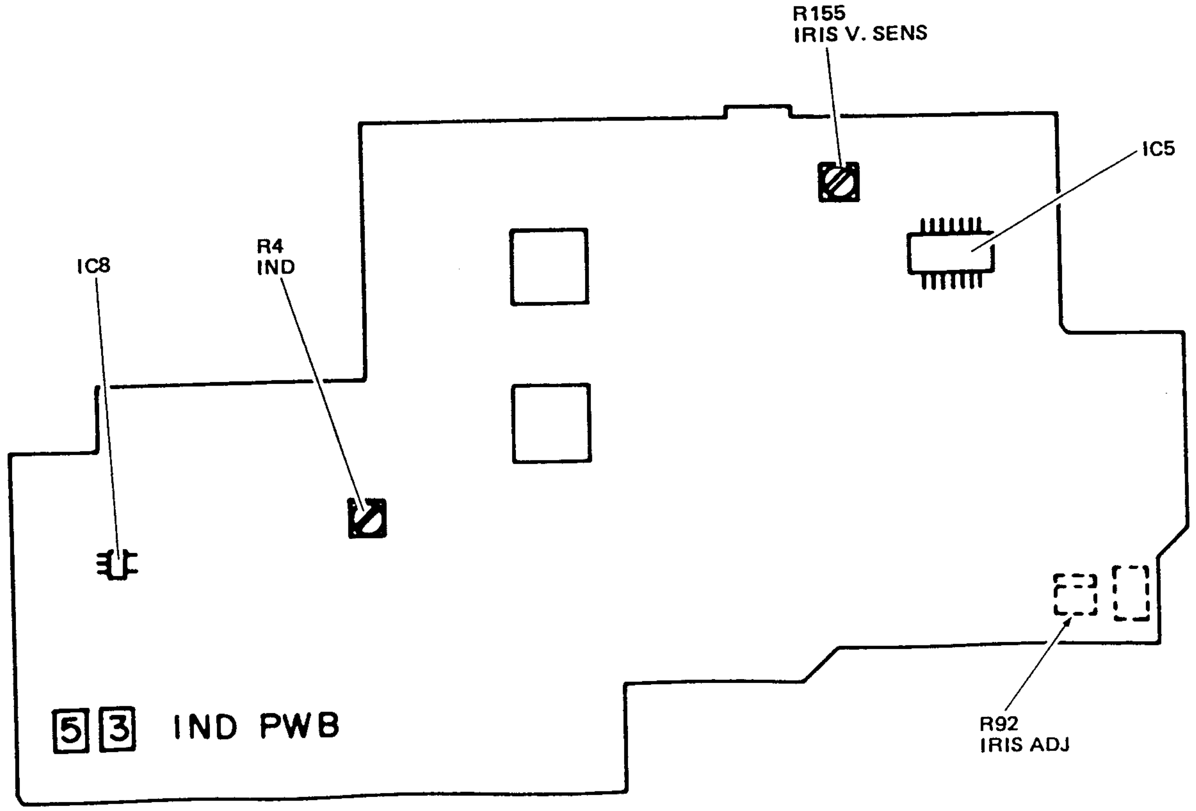

R8 R-ch
R7 L-ch
for A OUT
R4 L-ch
R5 R-ch
for A LEVEL IND.

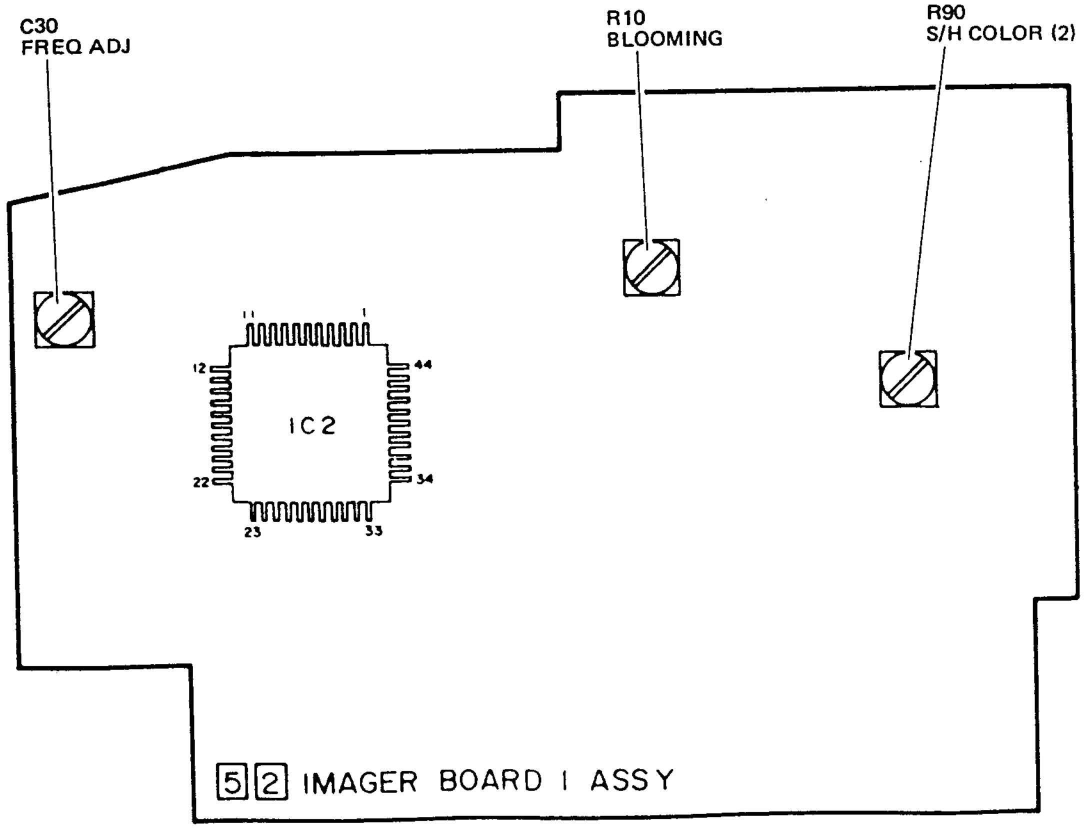

TP2 HOT
TP1 GND
R7 BIAS LEVEL
R63 EE LEVEL(L)
R61 EE LEVEL(R)
R106 HiFi (L) PB LEVEL
R15 NA PB LEVEL
R107 HiFi (R) PB LEVEL
TP4 PB FMA
R117 REC FM
03 AUDIO
TP6 LCH OUT
TP3 REC FMA
TP5 GND

■ VR and TESTPOINT LOCATION (CAMERA SECTION)


TP1
GND
TP2
YH (OH)
TP5
V. EDGE
R5
AGC
TP6
CDS OUT
TP7
R SEPA
R14
BLUE SEPA
R17
RED SEPA
R19
R PROCESS
R97
S. SET UP
R7 (IC3)
R OUT
R3 (IC3)
AW INDR B
R1 (IC3)
R SET
R6 (IC3)
B OUT
R5 (IC3)
B SET
R2 (IC3)
AW INDR R
R4 (IC3)
STD OUT
R21
B PROCESS
R33
YL SET UP LEVEL
R43
B SET UP
R42
R SET UP
R81
Y GAIN
R64
B-Y GAIN
R93
COLOR DIF
OFF SET
R57
NOISE SUP
GAIN
TP3
YH 1H
TP4
NS
Pin 6 CN-VP4
Pin 7 CN-VP4
5 5 VIDEO PROCESS PWB
R2 (IC4)
COLOR DIF
BALANCE
R1 (IC4)
NOISE BALANCE
TP8
B SEPA
R8
LOW LIGHT
IND LEVEL
Pin 2 CN-VP1
TP9
YL
TP10
S OUT
R32
Y SET UP


TP1
Y OUT
R14
W. CLIP
R32
B CAR BAL
R7
DE. BAL
R5
YH (1H) GAIN
R12
BURST PHASE
R105
R-Y PHASE
TP2
C OUT
R34
R CAR BAL
R117
R CAR LS
R118
B CAR LS
R42
BURST GAIN
R40
PHASE SHIFT
R17
SYNC LEVEL
5 6 ENCODRE PWB
R37
COLOR GAIN
R1
Y 1H LIN


R155
IRIS V. SENS
IC5
IC8
R4
IND
R92
IRIS ADJ
5 3 IND PWB


C30
FREQ ADJ
R10
BLOOMING
R90
S/H COLOR (2)
IC2
11
1
12
44
22
34
23
33
5 2 IMAGER BOARD I ASSY

SECTION 3
CAMERA SECTION ADJUSTMENT

3.1 PRECAUTIONS

3.1.1 Precautions

1. In the event of malfunction in the electrical circuit, troubleshooting with the aid of proper test instruments must be done first, and then, commerce necessary repair, replacement, and adjustment.
2. Test pattern illumination:
   Use halogen lamps of "3,200°K" and set them to illuminate the test pattern evenly at approximately 4,000 lux with the aid of a lux meter.
3. Test patterns:
   Use clean "Grayscale" and "Color bar" pattern charts.
4. Test points and potentiometer:
   They are very small and easy to be destroved. Therefore, pav special attention to them not to be shorted and destroyed.
   Use the adjustment tools for adjustment.

3.1.2 Hooking up

When adjusting the camera section, hook it up as shown in Fig. 3-1-1 by using the patch cord.

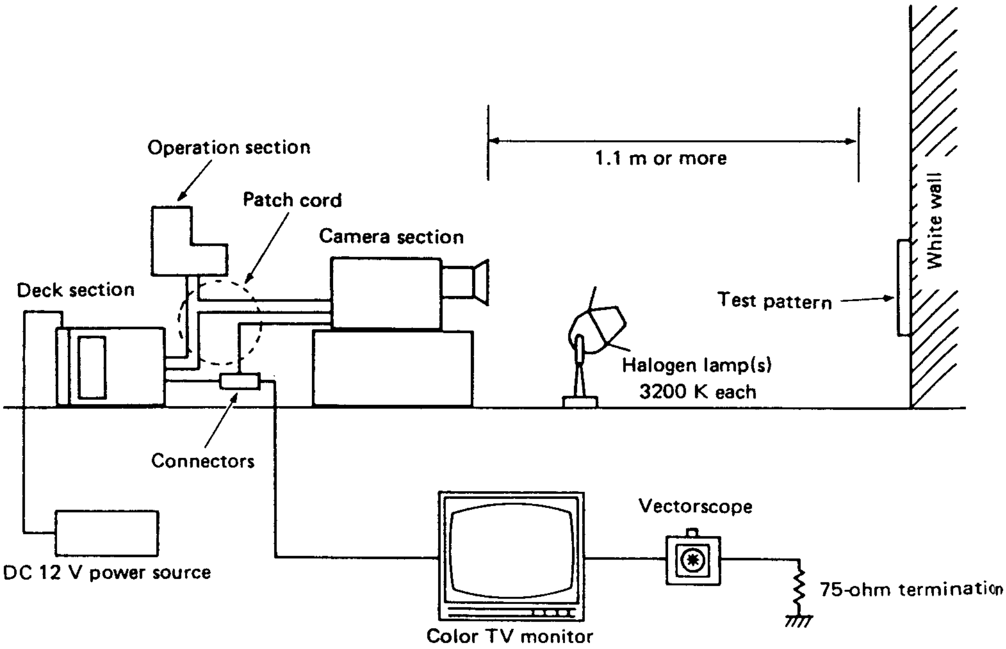
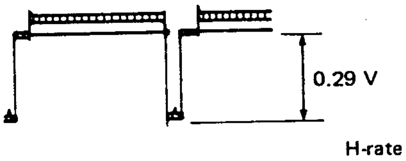
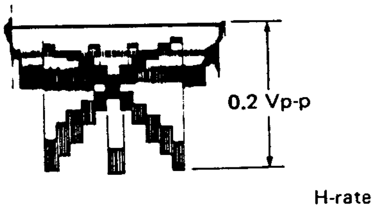
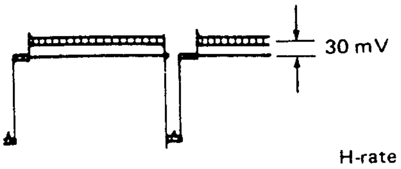

Operation section
Patch cord
Camera section
Deck section
1.1 m or more
White wall
Test pattern
Halogen lamp(s)
3200 K each
Connectors
Vectorscope
DC 12 V power source
75-ohm termination
Color TV monitor

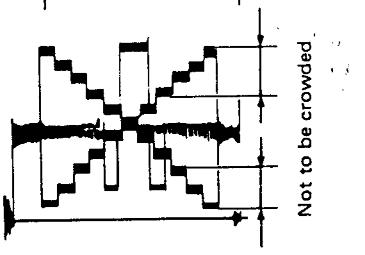
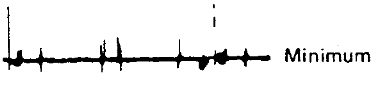
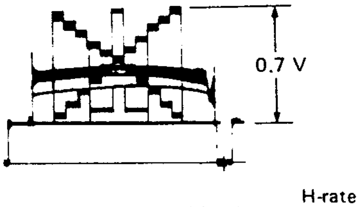
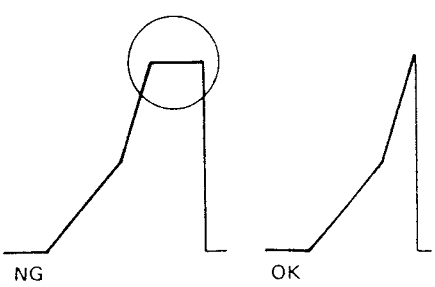
Fig. 3-1-1 Camera section adjustment

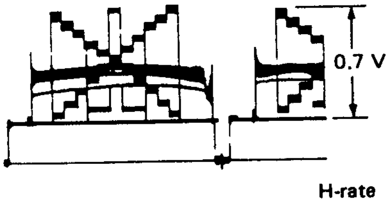
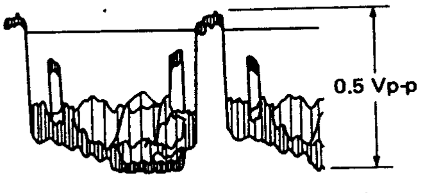
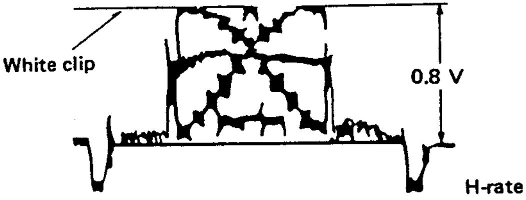
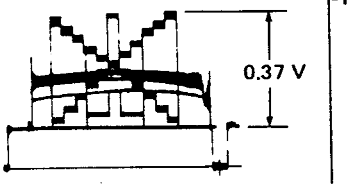
3.2 Y (LUMINANCE) CIRCUIT

Note: For adjustment, set the controls to the following positions unless otherwise specified.

	Control	Setting position
Monitor mode	White balance	PRESET INDOOR
	Focus	MANUAL
	Shutter speed	STD
	Iris	AUTO
	AGC	OFF

No.	Item	Signal & Mode	Waveform & Adjustment Parts		Description
			Check Point	Adjustment Parts	
1	CCD drive frequency	–	•IC5 pin 38 on IMAGER-1	•C61 (FREQ. ADJ) on IMAGER-1	1) Connect the frequency counter to IC5 pin 38, and adjust C61 to obtain 12.875000 MHz ± 40 Hz.
2	Y sync. level	• Lens closed	•TP1 (Y OUT) on ENCODER  Fig. 3-2-1 Y sync. level	•R17 (SYNC LEVEL) on ENCODER	1) With the lens capped, adjust R17 so that sync level at TP1 becomes 0.29 V.
3	CDS output level	• Gray scale Just scan	•TP6 (CDS OUT) on VIDEO PROCESS  Fig. 3-2-2 CDS output level	•R92 (IRIS ADJ) on INDICATOR	1) Connect the oscilloscope to TP6 and pick up the gray scale. 2) Adjust R92 so that output level becomes 0.2 Vp-p. **Note:** For easier observation, connect a resistor of 10 kΩ or so in series with the tip of the probe.
4	Y setup level	• Lens closed	•TP1 (Y OUT) on ENCODER  Fig. 3-2-3 Y setup level	•R32 (Y SETUP) on VIDEO PROCESS	1) With the lens capped, adjust R32 so that set-up level at TP1 becomes 30 mV.

No.	Item	Signal & Mode	Waveform & Adjustment Parts Check Point	 Adjustment Parts	Description
5	1H DL Y linearity	•Gray scale	•TP3 (Y 1H) on VIDEO PROCESS  Fig. 3-2-4 1H DL Y linearity	•R1 (Y 1H LIN) on ENCODER	1) Connect the oscilloscope to TP3 and pick up the gray scale. 2) Observing TP3 waveform on the oscilloscope, adjust R1 so that it is not crowed in the upper and lower portions.
6	Y 1H level	•Gray scale	•TP2 (Y 0H) •TP3 (Y 1H) on VIDEO PROCESS	•R5 (Y 1H GAIN) on ENCODER	1) Connect the oscilloscope to TP2 and TP3, and pick up the gray scale. 2) Measure signal level at TP2 and TP3. 3) Adjust R5 to obtain the same signal level at TP2 as at TP3. Note: For easier observation, connect resistors of 10 kΩ or so in series with the tip of the probes.
7	Detail enhancer balance	•Gray scale	•TP5 (V. EDGE) on VIDEO PROCESS  Fig. 3-2-5 DE. bar	•R7 (DE. BAL) on ENCODER	1) Connect the oscilloscope to TP5 and pick up the gray scale. 2) Adjust R7 so that average level of waveform becomes minimum. 3) Repeat the items No.6 and No.7 a few times to satisfy both items.
8	Y gain	•Gray scale	•TP1 (Y OUT) on ENCODER  Fig. 3-2-6 Y gain	•R81 (Y GAIN) on VIDEO PROCESS	1) Connect the oscilloscope to TP1 and pick up the gray scale. 2) Adjust R81 so that the Y level becomes 0.7 V.
9	Iris V. sensitivity	–	•IC5 pin 7 on INDICATOR  Fig. 3-2-7 Iris V. sensitivity	•R155 (IRIS V. SENS) on INDICATOR	1) Connect the oscilloscope to pin 7 of IC5 (with a bus wire, etc.), and adjust R155 to set it just before the leading edge peak point ([a] in the figure) where the signal breaks off.

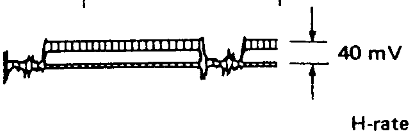
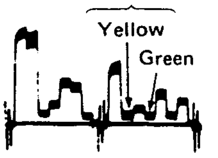
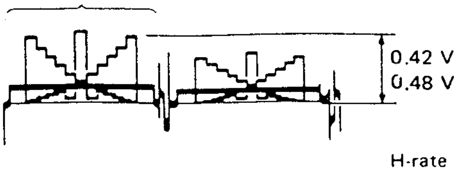
No.	Item	Signal & Mode	Waveform & Adjustment Parts		Description
			Check Point	Adjustment Parts	
10	Iris	•Gray scale Just scan	•TP1 (Y OUT) on ENCODER  Fig. 3-2-8 Iris	•R92 (IRIS) on INDICATOR	1) Pick up the gray scale pattern with just scan. 2) Adjust R92 for 0.7 V Y level at TP1.
11	Blooming	•Gray scale	•TP6 (CDS OUT) on VIDEO PROCESS  Fig. 3-2-9 Blooming	•R7 (BLOOMING) on IMAGER-1	1) Push the IRIS ⊞ button eight times. 2) Connect the oscilloscope to TP6 and pick up the gray scale. 3) Adjust R7 so that the TP6 signal level becomes 0.5 Vp-p. **Note:** For easier observation, connect a resistor of 10 kΩ or so in series with the tip of the probe. 4) Restore the iris mode to AUTO.
12	White clip	•Gray scale	•TP1 (Y OUT) on ENCODER  Fig. 3-2-10 White clip	•R14 (W. CLIP) on ENCODER	1) Pick up the gray scale pattern and observe H-rate waveform at TP1. 2) Turn the zoom ring (zoom out) so that the video level becomes more than 0.9 V. 3) Adjust R14 so that white clip becomes 0.8 V.
13	AGC	•Gray scale	•TP1 (Y OUT) on ENCODER  Fig. 3-2-11 AGC	•R92 (IRIS) on INDICATOR •R5 (AGC) on VIDEO PROCESS	1) Connect the oscilloscope to TP1, and shoot the gray scale. 2) With the AGC control set to OFF, adjust R92 to obtain 0.16 V for the pedestal waveform level. 3) Next, turn the AGC to ON and adjust R5 so that the pedestal level becomes 0.37 V at this time. 4) Do the item No. 10 'Iris adjustment' again.
14	Low light indicator	•Gray scale	•TP1 (Y OUT) on ENCODER	•R92 (IRIS) on INDICATOR •R8 (LLI LEV) on VIDEO PROCESS	1) Ground pin 4 (central pin of three) of IC8 of the INDICATOR board with a wire. (This displays the LOW LIGHT indication notwithstanding setting condition of the iris.) 2) The AGC control being set to OFF, shoot the gray scale. 3) Connect the oscilloscope to TP1, and set the R92 so that pedestal level becomes 0.6 V. 4) In the condition of the above step 3), turn the AGC to ON and adjust R8 so that the "LIGHT" indication on the viewfinder starts flickering. 5) After the above adjustments, make sure to remove the wire connected in the step 1). And, do the No. 10 'Iris adjustment' again.

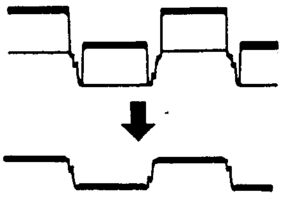
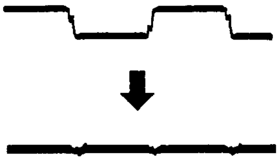
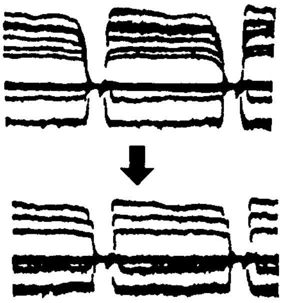
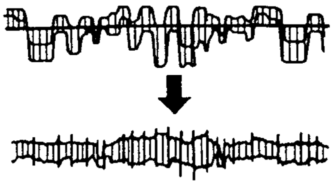
3.3 COLOR CIRCUIT

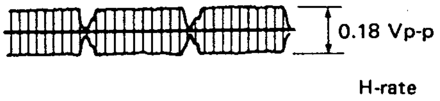
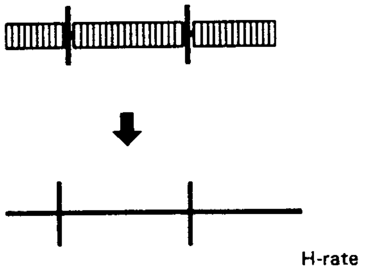
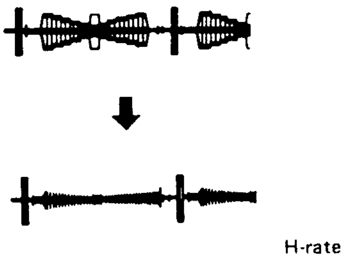
Note: For adjustment, set the controls to the following positions unless otherwise specified.

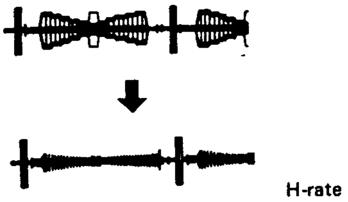
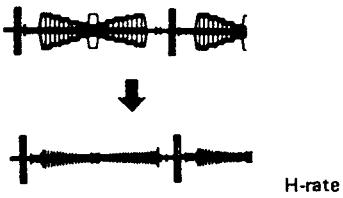
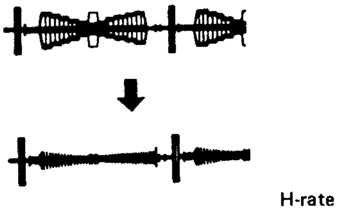
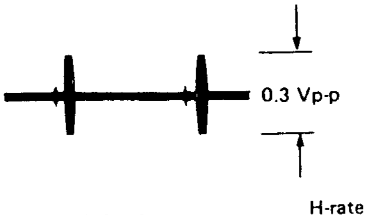
	Control	Setting position
Monitor mode	White balance Focus Shutter speed Iris AGC	PRESET INDOOR MANUAL STD AUTO OFF

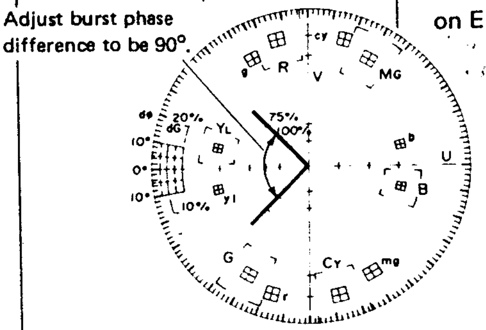
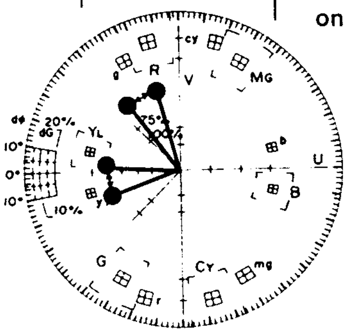
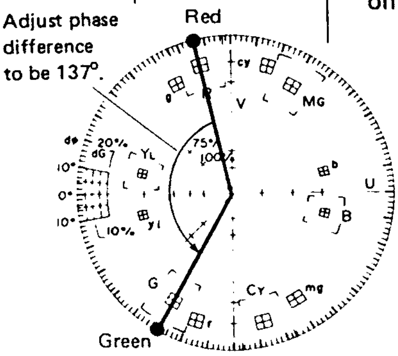
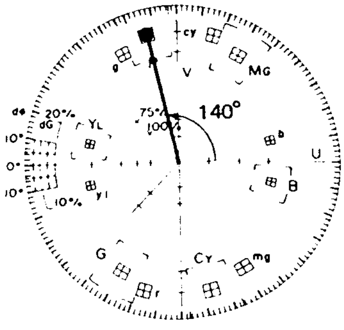
3.3.1 Basic INDOOR mode

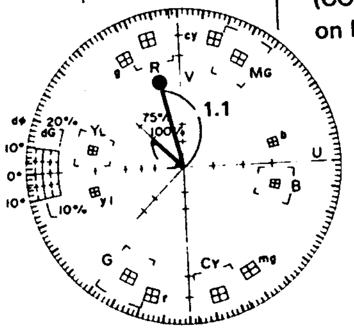
No.	Item	Signal & Mode	Waveform & Adjustment Parts		Description
			Check Point	Adjustment Parts	
1	YL setup level	• Lens closed	• TP9 (YL) on VIDEO PROCESS  Fig. 3-3-1 YL setup level	• R33 (YL SETUP LEVEL) on VIDEO PROCESS	1) Cap the lens with the AGC control set to OFF, and connect the oscilloscope to TP9. 2) Adjust R33 so that the setup level becomes 40 mV.
2	R/B separation	• Color bar Just scan	• TP6 (CDS OUT) • TP7 (R SEP) • TP8 (B SEP) on VIDEO PROCESS  Fig. 3-3-2 R/B separation	• R92 (IRIS) on INDICATOR • R17 (R SEP) • R14 (B SEP) on VIDEO PROCESS	1) Pick up the color bar chart and adjust R92 so that signal level at TP6 is 0.2 V. 2) Connect the oscilloscope to TP7 and supply external sync. signal to pin 2 of CN-VP1 (with a bus wire, etc.). 3) Observing small portion of waveform in level which varies to be small and large alternately, adjust R17 to equalize signal levels of yellow and green. 4) Change the oscilloscope connection to TP8, and adjust R14 to equalize signal levels of yellow and green. 5) Do the item of Sect. 3.2, No. 10 'Iris adjustment' again.
3	R/B process input level	• Gray scale Just scan	• TP6 (CDS OUT) • TP7 (R SEP) • TP8 (B SEP) on VIDEO PROCESS  Fig. 3-3-3 R/B pro. in level	• R92 (IRIS) on INDICATOR • R19 (R PROCESS) • R21 (B PROCESS) on VIDEO PROCESS	1) Pick up the gray scale and set R 92 so that signal level at TP6 becomes 0.2 V. 2) Connect the oscilloscope to TP7 and supply external sync. signal to pin 2 of CN-VP1 (with a bus wire, etc.). 3) Observing large portion of waveform in level which varies to be small and large alternately, adjust R19 so that the largest level becomes 0.42 V. 4) Change the oscilloscope connection to TP8, and adjust R21 to obtain 0.48 V for the maximum in level of the larger portions. 5) Do the item of Sect. 3.2, No. 10 'Iris adjustment' again.

No.	Item	Signal & Mode	Waveform & Adjustment Parts		Description
			Check Point	Adjustment Parts	
4	R/B setup	•Lens closed	•CN-VP4 pin 6 (R-Y) •CN-VP4 pin 7 (B-Y) on VIDEO PROCESS  Fig. 3-3-4 R/B setup	•R42 (R SETUP) •R43 (B SETUP) on VIDEO PROCESS	1) Cap the lens and set the AGC control to OFF. 2) Connect the oscilloscope to pin 6 of CN-VP4 (with a bus wire, etc.), and adjust R42 to obtain flat waveform. 3) Next, connect the oscilloscope to pin 7 of CN-VP4 (with a bus wire, etc.), and adjust R43 to flatten waveform.
5	Differential signal offset	•Lens closed	•CN-VP4 pin 6 (R-Y) on VIDEO PROCESS  Fig. 3-3-5 Dif. signal offset	•R93 (C DIF OFFSET) on VIDEO PROCESS	1) Cap the lens. 2) Connect the oscilloscope to pin 6 of CN-VP4 (with a bus wire, etc.), and adjust R93 to minimize level difference between lines (to align waveform).
6	Differential signal balance	•Color bar	•CN-VP4 pin 6 (R-Y) on VIDEO PROCESS  Fig. 3-3-6 Dif. signal bal.	•R2 [IC4] (C DIF BALANCE) on VIDEO PROCESS	1) Connect the oscilloscope to pin 6 of CN-VP4 and pick up the color bar chart. 2) Observing waveform on the oscilloscope, adjust R2 of IC4 to minimize level difference between lines (waveform overlapped one upon another).
7	Noise suppressor balance	•Color bar	•TP4 (C NOISE) on VIDEO PROCESS  Fig. 3-3-7 Noise sup. bal.	•R1 [IC4] (NOISE BALANCE) on VIDEO PROCESS	1) Connect the oscilloscope to TP4 and pick up the color bar chart. 2) Adjust R1 of IC4 so that edges of waveform at TP4 become the most indistinct.

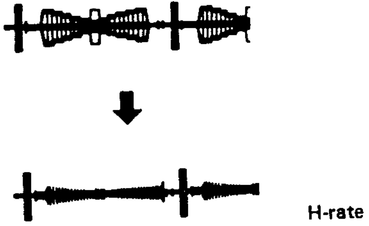
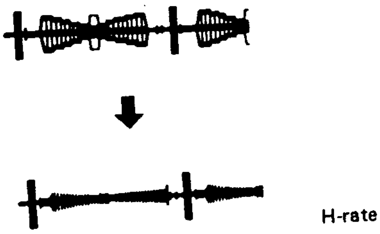
No.	Item	Signal & Mode	Waveform & Adjustment Parts		Description
			Check Point	Adjustment Parts	
8	Noise suppressor loop gain	•Color bar	•TP4 (C. NOISE) on VIDEO PROCESS  Fig. 3-3-8 Noise sup. loop gain	•R57 (NS GAIN) on VIDEO PROCESS	1) Connect the oscilloscope to TP4 and pick up the color bar chart. 2) Adjust R57 to obtain 0.18 Vp-p of signal level at TP4. 3) Repeat adjustments of the items from No. 6 to No. 8 a few times to satisfy all items.
9	Carrier balance	• Lens closed	•TP2 (C. OUT) on ENCODER  Fig. 3-3-9 Carrier bal.	•R32 (B CAR BAL) •R34 (R CAR BAL) •R117 (R CAR LS) •R118 (B CAR LS) on ENCODER	1) Cap the lens, and shortcircuit pins 2, 3 and 4 of CN-FA15. 2) Connect the oscilloscope to TP2, and adjust R32, R34, R117 and R118 to minimize carrier leak. 3) Release the pins 2, 3 and 4 of CN-FA15 from shortcircuit made in the step 1) above.
10	Color sensor setup	• Auto white • C8 filter	•TP10 (C. SENSOR OUT) on VIDEO PROCESS	• R97 (S. SETUP) on VIDEO PROCESS	1) Connect the digital voltmeter to TP10 and pick up the gray scale. 2) Attach a C8 filter to the sensor and adjust R97 to obtain voltage of 1.85 ± 0.01 V.
11	White balance	•Gray scale •Auto white •C8, C8, CC10Y filters	•TP2 (C OUT) on ENCODER  Fig. 3-3-10 White bal.	•R1 [IC3] (WB R SETUP) •R5 [IC3] (WB B SETUP) on VIDEO PROCESS	1) Connect the oscilloscope to TP2 and pick up the gray scale in the auto white mode. 2) Attach a C8 filter to the sensor and C8 + CC-10Y filters to the lens. 3) Adjust R1 and R5 of IC3 alternately to minimize carrier leak on the whole.

No.	Item	Signal & Mode	Waveform & Adjustment Parts		Description
			Check Point	Adjustment Parts	
12	White balance gain of indoor	•Gray scale •Auto white	•TP2 (C. OUT) on ENCODER  Fig. 3-3-11 W/B indoor	•R2 [IC3] (WB INDOOR R) •R3 [IC3] (WB INDOOR B) on VIDEO PROCESS	1) Connect the oscilloscope to TP2 and pick up the gray scale in the auto white mode. 2) Adjust R2 and R3 of IC3 alternately to minimize carrier leak on the whole.
13	White balance gain of outdoor	•Gray scale •Auto white •C14, C12 filters	•TP2 (C. OUT) on ENCODER  Fig. 3-3-12 W/B outdoor	•R6 [IC3] (WB OUTDOOR B) •R7 [IC3] (WB OUTDOOR R) on VIDEO PROCESS	1) Connect the oscilloscope to TP2 and pick up the gray scale in the auto white mode. 2) Attach a C14 filter to the lens and C16 filter to the sensor. 3) Adjust R6 and R7 of IC3 alternately to minimize carrier leak on the whole. 4) Repeat adjustments of items No. 11 through No. 13 several times.
14	White balance reference	•Gray scale •WB: INDOOR	•TP2 (C. OUT) on ENCODER  Fig. 3-3-13 W/B reference	•R21 (INDOOR STD) on FAW	1) Connect the oscilloscope to TP2, and pick up the gray scale with the preset for INDOOR mode. 2) Adjust R21 to minimize carrier leak on the whole.
15	Burst level	•Lens closed	•TP2 (C. OUT) on ENCODER  Fig. 3-3-14 Burst level	•R42(BURST LEV) on ENCODER	1) Cap the lens. 2) Connect the oscilloscope to TP2 (C. OUT), and adjust R42 to obtain 0.3 V for burst level.

No.	Item	Signal & Mode	Waveform & Adjustment Parts		Description
			Check Point	Adjustment Parts	
16	Burst phase difference	•Lens closed	•Vectorscope  Adjust burst phase difference to be 90°. R MG YL B U V G CY 75% 100% 20% 10% **Fig. 3-3-15** Burst phase dir.	•R12 (BURST PHASE) on ENCODER	1) Cap the lens. 2) Adjust R12 so that burst phase difference becomes 90°.
17	Color phase	•Color bar	•Vectorscope  R MG YL B U V G CY 75% 100% 20% 10% **Fig. 3-3-16** Color phase	•R40 (COLOR PHASE) on ENCODER	1) Pick up the color bar chart. 2) By use of a vectorscope, adjust R40 to minimize movement of red signal.
18	B-Y gain	•Color bar	•Vectorscope  Adjust phase difference to be 137°. Red Green R MG YL B U V G CY 75% 100% 20% 10% **Fig. 3-3-17** B-Y gain	•R64 (B-Y GAIN) on VIDEO PROCESS	1) Pick up the color bar chart. 2) Adjust R64 so that phase difference between red and green sections of the color bar chart becomes 137°.
19	R-Y phase	•Color bar	•Vectorscope  140° MG YL B U V G CY 75% 100% 20% 10% **Fig. 3-3-18** R-Y phase	•R105 (R-Y PHASE) on ENCODER	1) Pick up the color bar chart. 2) Adjust R105 so that phase of the red section of the color bar chart becomes 104°.

No.	Item	Signal & Mode	Waveform & Adjustment Parts		Description
			Check Point	Adjustment Parts	
20	Color level	•Color bar	•Vectorscope  cy R V MG 1.1 75% 100% dφ 20% dG YL 10° 0° 10° 10% yl b U B G CY mg r Fig. 3-3-19 Color level	•R37 (COLOR LEV) on ENCODER	1) Pick up the color bar chart. 2) Adjust R37 so that color level of the red section of the color bar chart becomes 1.1 times larger than the burst level of 0.3 Vp-p. 3) Repeat adjustments of items No. 18 through No. 20 several times.
21	Color spread	•Red and white subject	•TV monitor	•R90 (S/H COLOR-2) on IMAGER-1	1) Shoot a red and white subject. 2) Adjust R90 so that spreading of the red color becomes minimum.

3.3.2 White balance PRESET FL and OUTDOOR mode

No.	Item	Signal & Mode	Waveform & Adjustment Parts		Description
			Check Point	Adjustment Parts	
1	PRESET FL	•Gray scale	•TP2 (C. OUT) on ENCODER  Fig. 3-3-20 PRESET FL	•R24 (FL STD) on FAW	1) Connect the oscilloscope to TP2, and pick up the gray scale with the preset set for the FL mode. 2) Attach C8 + CC10Y filters to the lens. 3) Adjust R24 to minimize carrier leak on the whole.
2	PRESET OUTDOOR	•Gray scale	•TP2 (C. OUT) on ENCODER  Fig. 3-3-21 PRESET OUTDOOR	•R4 [IC3] (OUTDOOR STD) on VIDEO PROCESS	1) Connect the oscilloscope to TP2, and pick up the gray scale with the preset set for the OUTDOOR mode. 2) Attach a C14 filter to the lens. 3) Adjust R4 of IC3 to minimize carrier leak on the whole.

3.4 VF INDICATOR POSITION

No.	Item	Signal & Mode	Waveform & Adjustment Parts		Description
			Check Point	Adjustment Parts	
1	VF indicator position	•REC •AGC: OFF	•Viewfinder screen	•R14 (IND POSITION) on INDICATOR	1) Set up indications (AGC OFF, REC, etc.) on both sides of the viewfinder. 2) Adjust R to equalize outer margins of right and left sides.

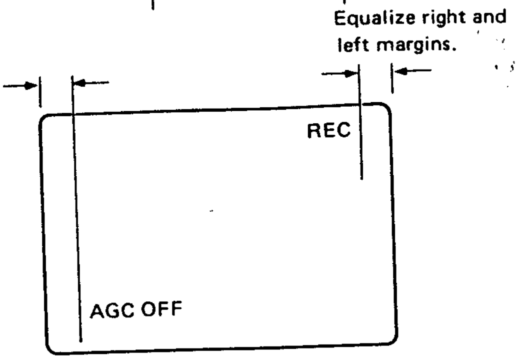


Fig. 3-4-1 VF ind. position

3.5 BACK FOCUS

No.	Item	Signal & Mode	Waveform & Adjustment Parts		Description
			Check Point	Adjustment Parts	
1	Back focus	•Subject of more than 15 m or far ahead •IRIS open with ND filter	•TV monitor	•Master lens	1) Shoot a subject as much as 15 m or far ahead with the lens set to the wide-angle (12 mm). 2) Attach an ND filter to the lens and open the iris. (Confirm that "LIGHT" is displayed on the electronic viewfinder screen.) 3) Set the focus ring to the infinitive (∞) position. 4) Loosen the screw Ⓐ, and, observing the TV monitor screen, adjust position of the master lens with a back focus adjustment handle to bring the subject into focus. 5) After the adjustment, tighten the screw Ⓐ and confirm that back focus is correctly adjusted.

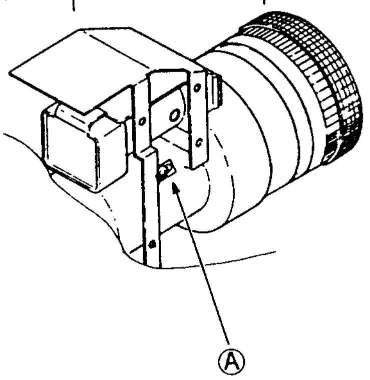


Fig. 3-5-1(A) Back focus 1

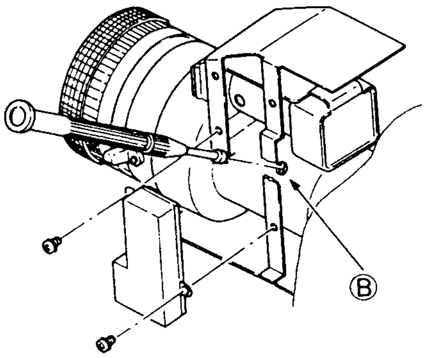
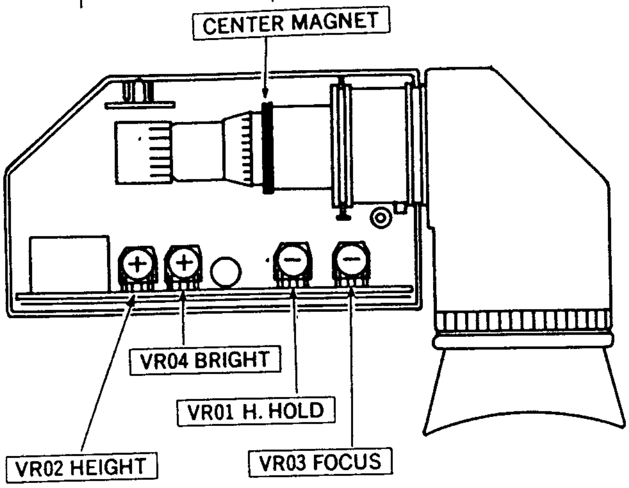


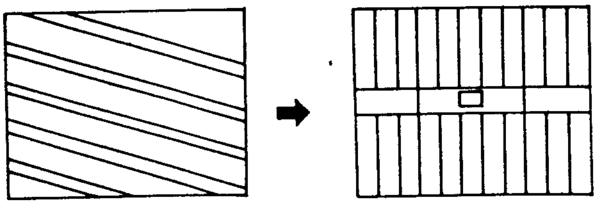
Fig. 3-5-1(B) Back focus 2

3.6 ELECTRONIC VIEWFINDER ADJUSTMENT

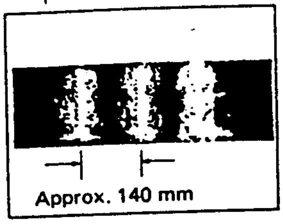
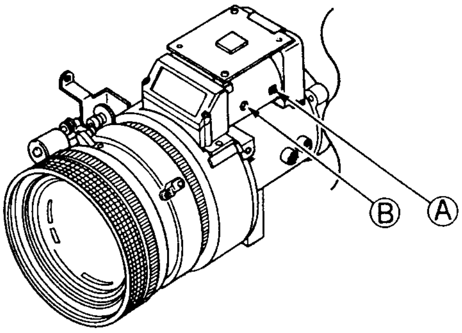
Note: Unless otherwise specified, all adjustment parts are located on the $\boxed{7}$ $\boxed{1}$ VF MAIN board.

<table>
<tr><th rowspan="2">No.</th><th rowspan="2">Item</th><th rowspan="2">Signal & Mode</th><th colspan="2">Waveform & Adjustment Parts</th><th rowspan="2">Description</th></tr>
<tr><th>Check Point</th><th>Adjustment Parts</th></tr>
<tr><td rowspan="2">1</td><td>Horizontal sync.</td><td>•Gray scale</td><td>•Viewfinder screen</td><td>•VR01 (H. HOLD)</td><td rowspan="2">1) Observing pictures on the viewfinder screen, turn VR01 fully clockwise to make pictures unstable.
2) Gradually turn VR01 counterclockwise until the picture becomes stable. At this time, mark the VR's position for further reference.
3) Then, turn VR01 fully counterclockwise to make the picture unstable again.
4) Gradually return VR01 in the clockwise direction until the picture becomes stable, and mark this position, too.
5) Finally set the VR01 at the midpoint between the two markings.</td></tr>
<tr><td colspan="4">

CENTER MAGNET
VR04 BRIGHT
VR01 H. HOLD
VR02 HEIGHT
VR03 FOCUS

Fig. 3-6-1 Horizontal sync. 1

(a) (b)
Fig. 3-6-2 Horizontal sync. 2</td></tr>
<tr><td>2</td><td>Vertical scanning</td><td>•Gray scale</td><td>•Viewfinder screen</td><td>•VR02 (HEIGHT)</td><td>1) Observing the picture on the viewfinder screen, adjust VR02 for normal picture amplitude.</td></tr>
<tr><td>3</td><td>Centering</td><td>•Gray scale</td><td>•Viewfinder screen</td><td>•Centering magnet</td><td>1) Pick up the gray scale to locate it in the center of the TV monitor screen, and adjust the centering magnet so that the picked up gray scale pattern is positioned in the center of the viewfinder.</td></tr>
<tr><td>4</td><td>Focus</td><td>•Gray scale</td><td>•Viewfinder screen</td><td>•VR03 (FOCUS)</td><td>1) Observing image on the viewfinder screen, adjust VR03 to obtain clear picture of the gray scale in its center.</td></tr>
<tr><td>5</td><td>Brightness</td><td>•Lens closed</td><td>•Viewfinder screen</td><td>•VR04 (BRIGHT)</td><td>1) Close the iris with the lens cap, and adjust VR04 so that the CRT raster of the viewfinder is just barely visible.</td></tr>
</table>

3.7 AUTO FOCUS

No.	Item	Mode & Signal	Check Point	Adjustment Parts	Procedure
			Waveform & Adjustment		
1	Auto focus lens adj.	• Camera object in the distance of 2 m • Auto focus chart • Iris: Opened	• Monitor TV	• AF lens	Note: Before proceeding to this adjustment, confirm that the back focus is correctly adjusted. 1) Set up the camera and the auto focus chart so that the distance between the chart and the lens is 2 m. 2) Shoot the auto focus chart in parallel. 3) Loosen the screw Ⓐ on the bottom of the auto focus unit and insert an eccentric screwdriver Ⓑ into the AF lens hole (see Fig. B). 4) Move the AF lens to the front and rear by turning the eccentric screwdriver to bring the chart into focus. 5) Tighten the screw Ⓐ.
			 Fig. 3-7-1 (A) AF lens adj. 1  Fig. 3-7-1 (B) AF lens adj. 2		

No.	Item	Mode & Signal	Check Point	Adjustment Parts	Procedure
			Waveform & Adjustment		
2	Bias focus	• Camera object in the distance of 2 m • FOCUS SW: MANUAL • Auto focus chart • Iris: Opened	• Monitor TV "Correct focus" indication in E.VF	• VR4 (BIAS FOCUS)	1) Focus the main lens. 2) Adjust VR4 so that the "correct focus" indication in the E. VF screen.

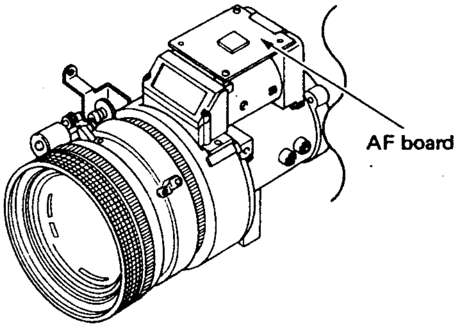


Fig. 3-7-2 Bias focus 1

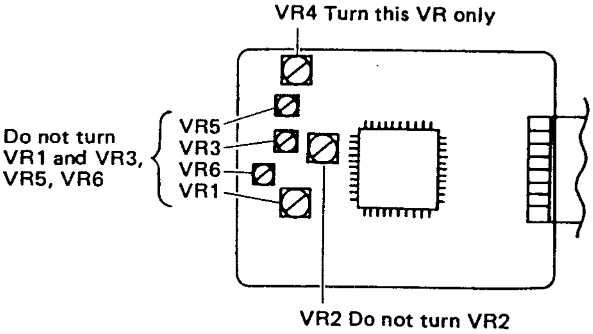

VR4 Turn this VR only
Do not turn VR1 and VR3, VR5, VR6
VR5
VR3
VR6
VR1
VR2 Do not turn VR2

Fig. 3-7-3 Bias focus 2

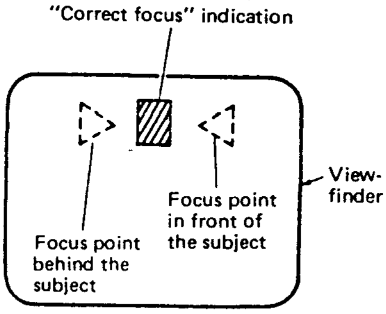
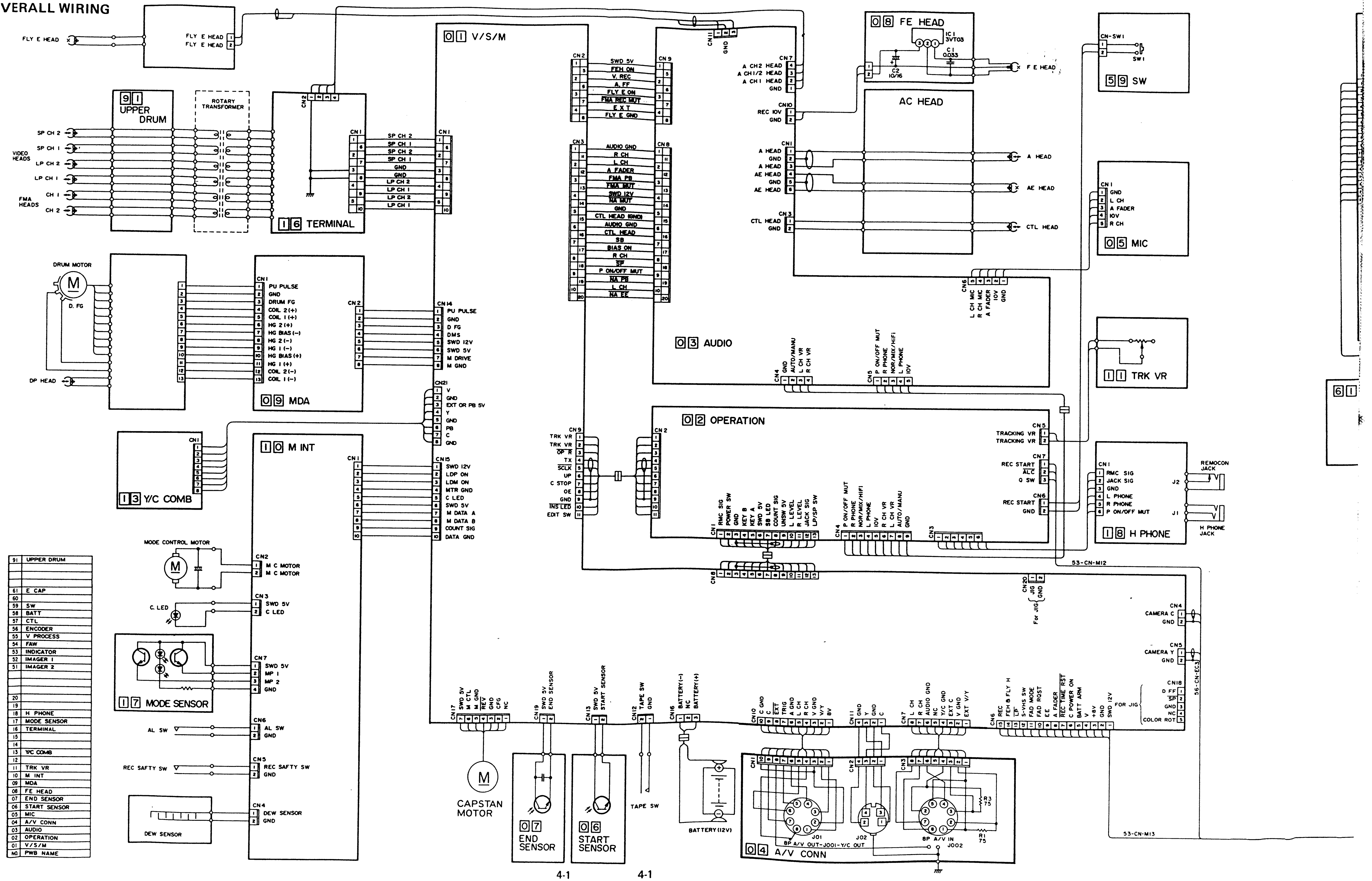

"Correct focus" indication
View-finder
Focus point in front of the subject
Focus point behind the subject

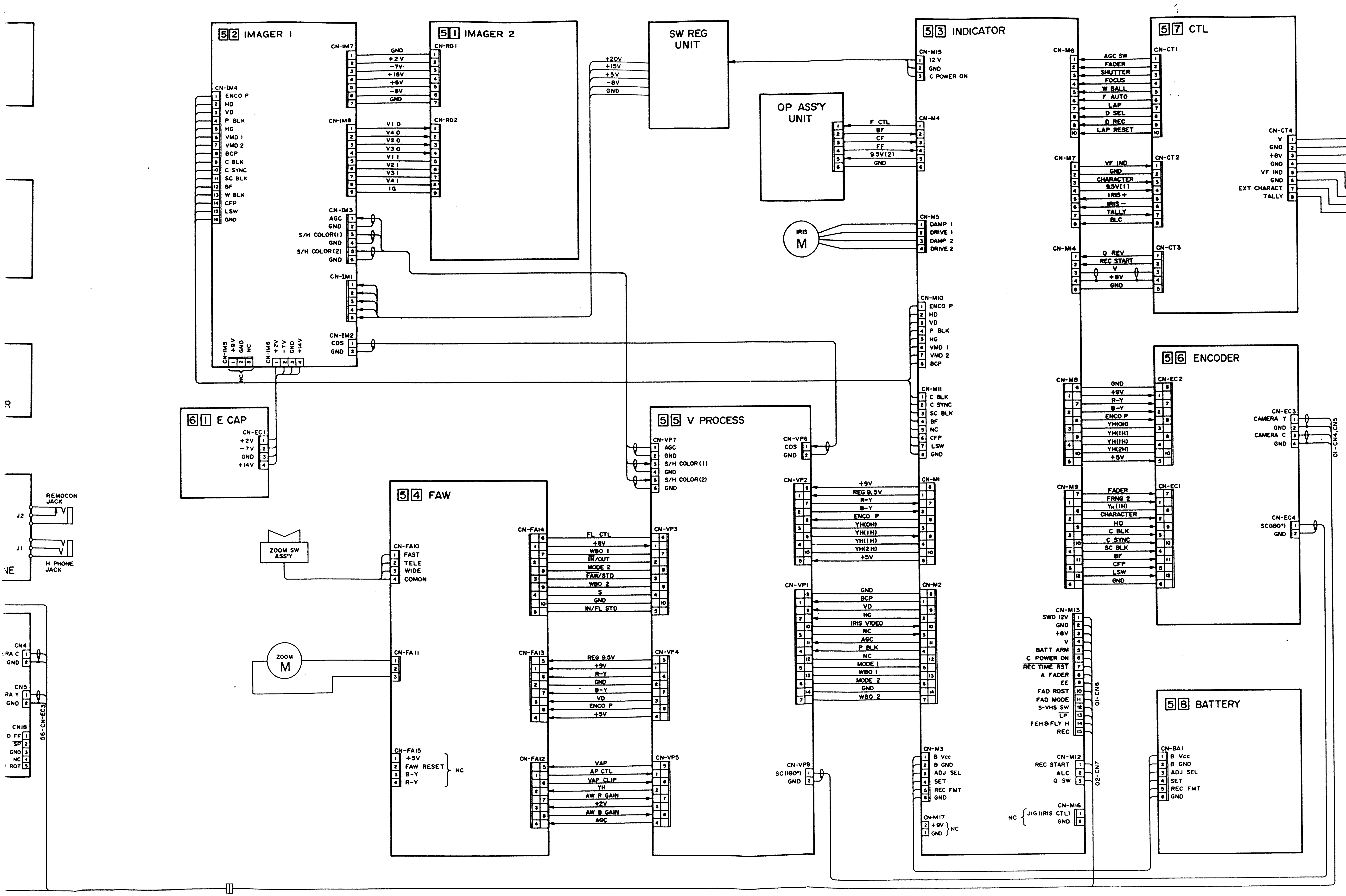
Fig. 3-7-4 Bias focus 3

SECTION 4
OVERALL WIRING AND BLOCK DIAGRAMS

4.1 OVERALL WIRING

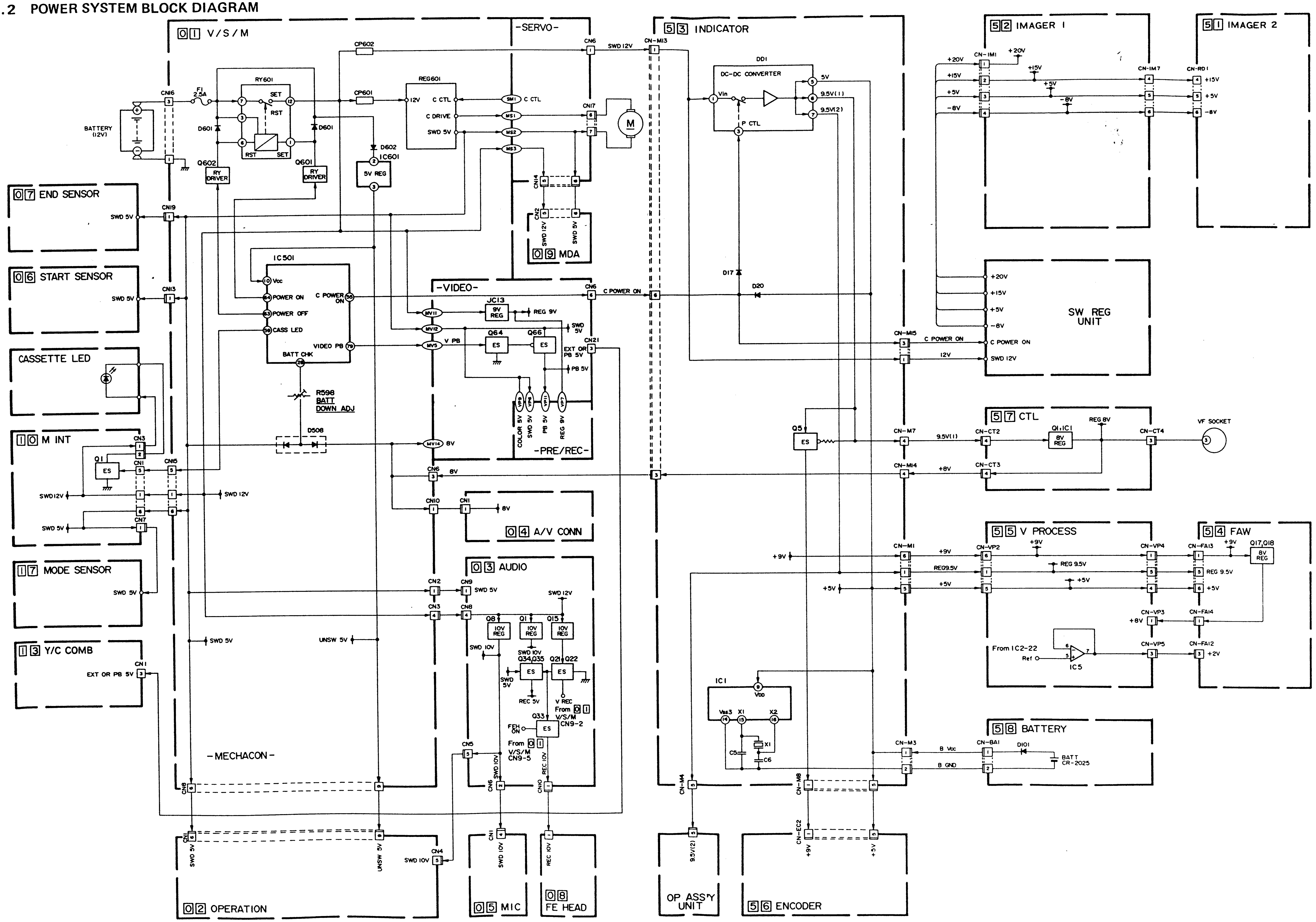

FLY E HEAD
FLY E HEAD
FLY E HEAD
91 UPPER DRUM
ROTARY TRANSFORMER
SP CH 2
SP CH 1
VIDEO HEADS
LP CH 2
LP CH 1
FMA HEADS
CH 1
CH 2
16 TERMINAL
CN2
CN1
SP CH 2
SP CH 1
SP CH 2
SP CH 1
GND
GND
LP CH 2
LP CH 1
LP CH 2
LP CH 1
01 V/S/M
DRUM MOTOR
D. FG
DP HEAD
09 MDA
PU PULSE
GND
DRUM FG
COIL 2(+)
COIL 1(+)
HG 2(+)
HG BIAS(−)
HG 2(−)
HG 1(−)
HG BIAS(+)
HG 1(+)
COIL 2(−)
COIL 1(−)
CN14
PU PULSE
GND
D FG
DMS
SWD 12V
SWD 5V
M DRIVE
M GND
CN21
V
GND
EXT OR PB 5V
Y
GND
PB
C
GND
13 Y/C COMB
10 M INT
CN15
SWD 12V
LDP ON
LDM ON
MTR GND
C LED
SWD 5V
M DATA A
M DATA B
COUNT SIG
DATA GND
MODE CONTROL MOTOR
M C MOTOR
M C MOTOR
C. LED
SWD 5V
C LED
17 MODE SENSOR
SWD 5V
MP 1
MP 2
GND
AL SW
AL SW
GND
REC SAFTY SW
REC SAFTY SW
GND
DEW SENSOR
DEW SENSOR
GND
CN2
SWD 5V
FEH ON
V. REC
A. FF
FLY E ON
FMA REC MUT
EXT
FLY E GND
CN3
CN9
CN8
AUDIO GND
R CH
L CH
A FADER
FMA PB
FMA MUT
SWD 12V
NA MUT
GND
CTL HEAD (GND)
AUDIO GND
CTL HEAD
SB
BIAS ON
R CH
SP
P ON/OFF MUT
NA PB
L CH
NA EE
03 AUDIO
CN11
GND
CN7
A CH2 HEAD
A CH1/2 HEAD
A CH1 HEAD
GND
CN10
REC IOV
GND
CN1
A HEAD
GND
A HEAD
AE HEAD
GND
AE HEAD
CN3
CTL HEAD
GND
08 FE HEAD
IC1 3VT03
C1 0.033
C2 10/16
F E HEAD
AC HEAD
A HEAD
AE HEAD
CTL HEAD
CN6
L CH MIC
R CH MIC
A FADER
IOV
GND
CN4
GND
AUTO/MANU
L CH VR
R CH VR
CN5
P ON/OFF MUT
R PHONE
NOR/MIX/HIFI
L PHONE
IOV
CN-SW1
SW1
59 SW
CN1
GND
L CH
A FADER
IOV
R CH
05 MIC
11 TRK VR
02 OPERATION
CN9
TRK VR
TRK VR
OP R
TX
SCLK
UP
C STOP
OE
GND
INS LED
EDIT SW
CN2
CN5
TRACKING VR
TRACKING VR
CN7
REC START
ALC
Q SW
CN6
REC START
GND
CN1
RMC SIG
POWER SW
GND
KEY B
KEY A
SWD 5V
SB LED
COUNT SIG
UNSW 5V
L LEVEL
R LEVEL
JACK SIG
LP/SP SW
CN4
P ON/OFF MUT
R PHONE
NOR/MIX/HIFI
L PHONE
IOV
R CH VR
L CH VR
AUTO/MANU
GND
CN3
CN8
CN1
RMC SIG
JACK SIG
GND
L PHONE
R PHONE
P ON/OFF MUT
REMOCON JACK
J2
J1
H PHONE JACK
18 H PHONE
61
53-CN-M12
CN20
JIG
GND
For JIG
CN4
CAMERA C
GND
CN5
CAMERA Y
GND
56-CN-EC3
CN18
D FF
SP
GND
NC
COLOR ROT
FOR JIG
CN17
SWD 5V
M CTL
M GND
REV
GND
CFG
NC
CAPSTAN MOTOR
CN19
SWD 5V
END SENSOR
07 END SENSOR
CN13
SWD 5V
START SENSOR
06 START SENSOR
CN12
TAPE SW
GND
TAPE SW
CN16
BATTERY(−)
NC
BATTERY(+)
BATTERY (12V)
CN10
C GND
C
EXT
TRIG
A GND
L CH
R CH
V GND
V/Y
8V
CN11
GND
Y
GND
C
CN7
L CH
R CH
AUDIO GND
NC
Y/C GND
EXT C
V GND
EXT V/Y
CN6
REC
FEH & FLY H
LP
S-VHS SW
FAD MODE
FAD RQST
EE
A FADER
REC TIME RST
C POWER ON
BATT ARM
V
+8V
GND
SWD 12V
04 A/V CONN
CN1
CN2
CN3
J01
J02
8P A/V OUT-J001-Y/C OUT
8P A/V IN
J002
R3 75
R1 75
53-CN-M13

91	UPPER DRUM
61	E CAP
60	
59	SW
58	BATT
57	CTL
56	ENCODER
55	V PROCESS
54	FAW
53	INDICATOR
52	IMAGER 1
51	IMAGER 2
20	
19	
18	H PHONE
17	MODE SENSOR
16	TERMINAL
15	
14	
13	Y/C COMB
12	
11	TRK VR
10	M INT
09	MDA
08	FE HEAD
07	END SENSOR
06	START SENSOR
05	MIC
04	A/V CONN
03	AUDIO
02	OPERATION
01	V/S/M
NO.	PWB NAME

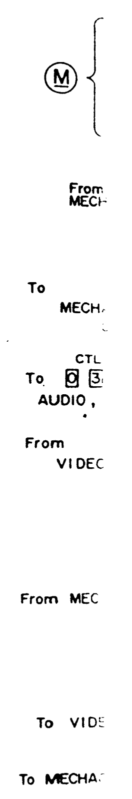

52 IMAGER 1
51 IMAGER 2
SW REG UNIT
OP ASS'Y UNIT
53 INDICATOR
57 CTL
56 ENCODER
58 BATTERY
61 E CAP
55 V PROCESS
54 FAW
ZOOM SW ASS'Y
ZOOM M
IRIS M
VF SOCKET
REMOCON JACK
H PHONE JACK
J1
J2
CN-IM1
CN-IM2
CN-IM3
CN-IM4
CN-IM5
CN-IM6
CN-IM7
CN-IM8
CN-RD1
CN-RD2
CN-EC1
CN-EC2
CN-EC3
CN-EC4
CN-M1
CN-M2
CN-M3
CN-M4
CN-M5
CN-M6
CN-M7
CN-M8
CN-M9
CN-M10
CN-M11
CN-M12
CN-M13
CN-M14
CN-M15
CN-M16
CN-M17
CN-CT1
CN-CT2
CN-CT3
CN-CT4
CN-VP1
CN-VP2
CN-VP3
CN-VP4
CN-VP5
CN-VP6
CN-VP7
CN-VP8
CN-FA10
CN-FA11
CN-FA12
CN-FA13
CN-FA14
CN-FA15
CN-BA1
01-CN6
02-CN7
01-CN4,CN5
56-CN-EC3

NOTE: Portions are connected by patchcords each other, refer to note of patchcords or page 5-2.

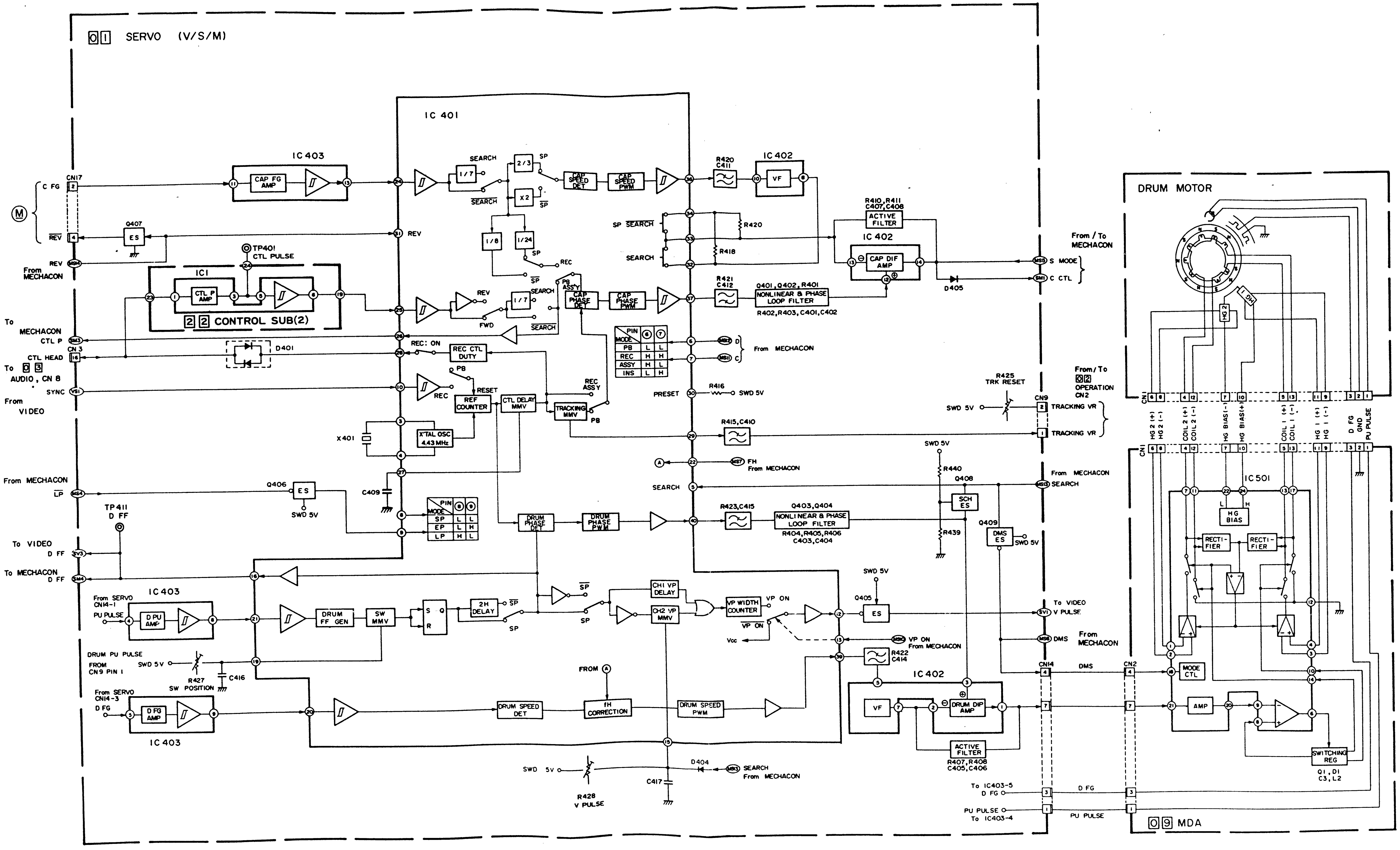
4.2 POWER SYSTEM BLOCK DIAGRAM


01 V/S/M
-SERVO-
BATTERY (12V)
CN16
F1 2.5A
RY601
SET
RST
D601
Q602 RY DRIVER
Q601 RY DRIVER
CP602
CP601
REG601
12V
C CTL
C DRIVE
SWD 5V
D602
IC601 5V REG
SM1
MS1
MS2
MS3
CN6
SWD 12V
CN17
M
CN14
CN2
SWD 12V
SWD 5V
09 MDA
07 END SENSOR
SWD 5V
CN19
06 START SENSOR
CN13
CASSETTE LED
10 M INT
CN3
Q1 ES
CN1
CN15
SWD12V
SWD 5V
CN7
17 MODE SENSOR
13 Y/C COMB
EXT OR PB 5V
IC501
Vcc
POWER ON
POWER OFF
CASS LED
C POWER ON
VIDEO PB
BATT CHK
R598 BATT DOWN ADJ
D508
-VIDEO-
JC13 9V REG
REG 9V
MV11
MV12
MV5
MV14
V PB
Q64 ES
Q66 ES
EXT OR PB 5V
CN21
PB 5V
COLOR 5V
SWD 5V
PB 5V
REG 9V
-PRE/REC-
8V
CN10
04 A/V CONN
03 AUDIO
CN2
CN9
CN3
CN8
Q8 10V REG
Q1 10V REG
Q15 10V REG
SWD 10V
Q34,Q35
Q21,Q22
ES
REC 5V
V REC
From 01 V/S/M CN9-2
Q33
FEH ON
From 01 V/S/M CN9-5
UNSW 5V
-MECHACON-
CN5
CN8
CN6
CN10
02 OPERATION
CN4
SWD 10V
05 MIC
08 FE HEAD
REC 10V
53 INDICATOR
CN-M13
DD1 DC-DC CONVERTER
Vin
P CTL
5V
9.5V(1)
9.5V(2)
D17
D20
C POWER ON
Q5 ES
IC1
VDD
Vss3
X1
X2
C5
C6
CN-M4
CN-M8
9.5V(2)
OP ASS'Y UNIT
CN-EC2
+9V
+5V
56 ENCODER
52 IMAGER 1
CN-IM1
+20V
+15V
+5V
-8V
CN-IM7
51 IMAGER 2
CN-RD1
SW REG UNIT
CN-M15
C POWER ON
12V
SWD 12V
57 CTL
CN-M7
CN-CT2
Q1,IC1 8V REG
REG 8V
CN-CT4
VF SOCKET
CN-M14
CN-CT3
+8V
55 V PROCESS
CN-M1
CN-VP2
REG9.5V
CN-VP4
CN-VP3
CN-VP5
From IC2-22
Ref
IC5
54 FAW
CN-FA13
Q17,Q18 8V REG
REG 9.5V
CN-FA14
CN-FA12
+2V
58 BATTERY
CN-M3
CN-BA1
B Vcc
B GND
D101
BATT CR-2025

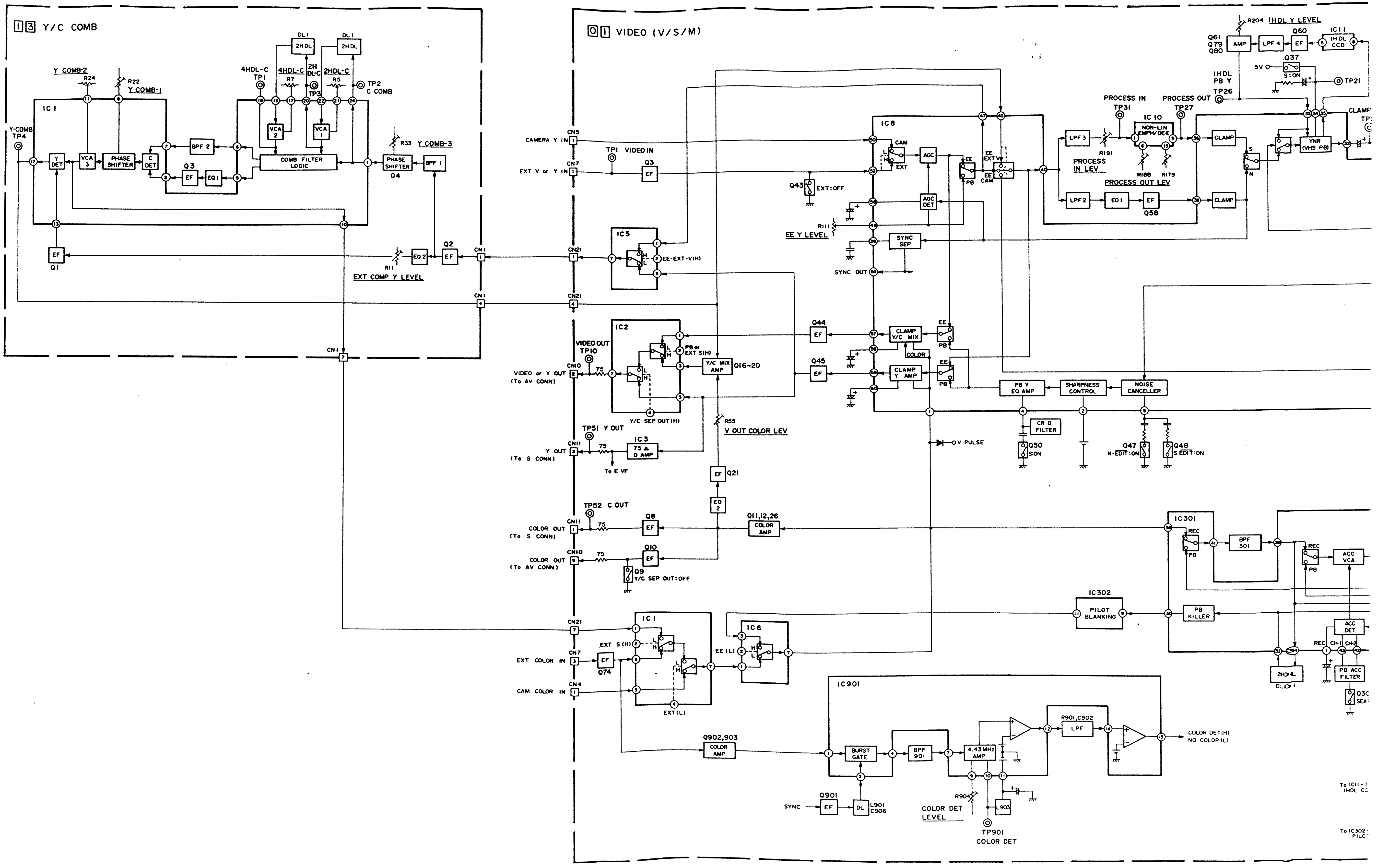
4.3 SER


M
From MECH
To MECH
CTL
To 03 AUDIO
From VIDEO
From MEC
To VID
To MECHA

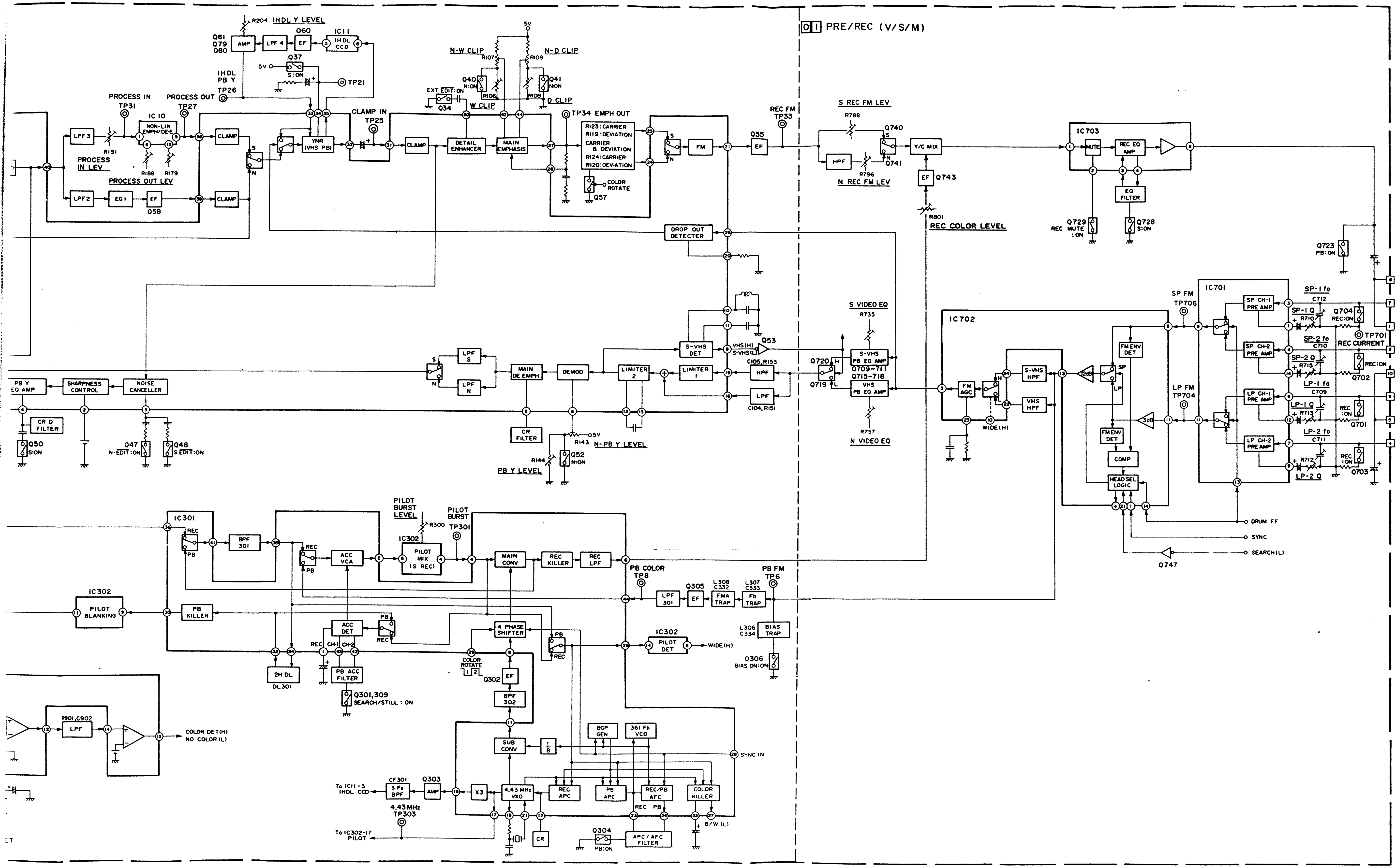
4.3 SERVO BLOCK DIAGRAM


01 SERVO (V/S/M)
IC 401
IC 403
CAP FG AMP
IC 402
VF
R420 C411
SEARCH
1/7
2/3
SP
X2
SEARCH
SP
CAP SPEED DET
CAP SPEED PWM
1/8
1/24
SP
REC
SP SEARCH
R420
SEARCH
R418
R410, R411 C407, C408
ACTIVE FILTER
IC 402
CAP DIF AMP
From / To MECHACON
S MODE
C CTL
D405
DRUM MOTOR
M
C FG
CN17
REV
Q407
ES
REV
From MECHACON
TP401 CTL PULSE
IC1
CTL P AMP
22 CONTROL SUB(2)
REV
FWD
SEARCH
PB ASSY
CAP PHASE DET
CAP PHASE PWM
R421 C412
Q401, Q402, R401
NONLINEAR & PHASE LOOP FILTER
R402, R403, C401, C402
To MECHACON CTL P
CN3
CTL HEAD
To 03 AUDIO, CN 8
D401
REC: ON
REC CTL DUTY
PB
RESET
SYNC
From VIDEO
REF COUNTER
CTL DELAY MMV
TRACKING MMV
REC ASSY
PB
PIN | 6 | 7
MODE
PB | L | L
REC | H | H
ASSY | H | L
INS | L | H
From MECHACON
D
C
PRESET
R416
SWD 5V
R425 TRK RESET
CN9
SWD 5V
From/To 02 OPERATION CN2
TRACKING VR
TRACKING VR
R415, C410
X401
X'TAL OSC 4.43 MHz
FH From MECHACON
SWD 5V
R440
Q408
From MECHACON SEARCH
From MECHACON LP
Q406
ES
SWD 5V
C409
PIN | 8 | 9
MODE
SP | L | L
EP | L | H
LP | H | L
SEARCH
SCH ES
R423, C415
Q403, Q404
NONLINEAR & PHASE LOOP FILTER
R404, R405, R406 C403, C404
Q409
DMS ES
R439
SWD 5V
TP411 D FF
To VIDEO D FF
To MECHACON D FF
DRUM PHASE DET
DRUM PHASE PWM
IC 403
From SERVO CN14-1
PU PULSE
D PU AMP
DRUM FF GEN
SW MMV
S Q
R
2H DELAY
SP
SP
SP
SP
CH1 VP DELAY
CH2 VP MMV
VP WIDTH COUNTER
VP ON
VP ON
Vcc
SWD 5V
Q405
ES
To VIDEO V PULSE
VP ON From MECHACON
DMS
From MECHACON
DRUM PU PULSE FROM CN9 PIN 1
SWD 5V
R427 SW POSITION
C416
R422 C414
IC 402
FROM A
From SERVO CN14-3
D FG
D FG AMP
IC 403
DRUM SPEED DET
FH CORRECTION
DRUM SPEED PWM
VF
DRUM DIF AMP
ACTIVE FILTER
R407, R408 C405, C406
CN14
DMS
SWD 5V
R428 V PULSE
C417
D404
SEARCH From MECHACON
To IC403-5 D FG
PU PULSE To IC403-4
D FG
PU PULSE
CN1
HG 2 (+)
HG 2 (-)
COIL 2 (+)
COIL 2 (-)
HG BIAS(-)
HG BIAS(+)
COIL 1 (+)
COIL 1 (-)
HG 1 (+)
HG 1 (-)
D FG
GND
PU PULSE
HG 2
HG 1
IC501
L H
HG BIAS
RECTI-FIER
RECTI-FIER
MODE CTL
AMP
SWITCHING REG
Q1, D1 C3, L2
CN2
09 MDA

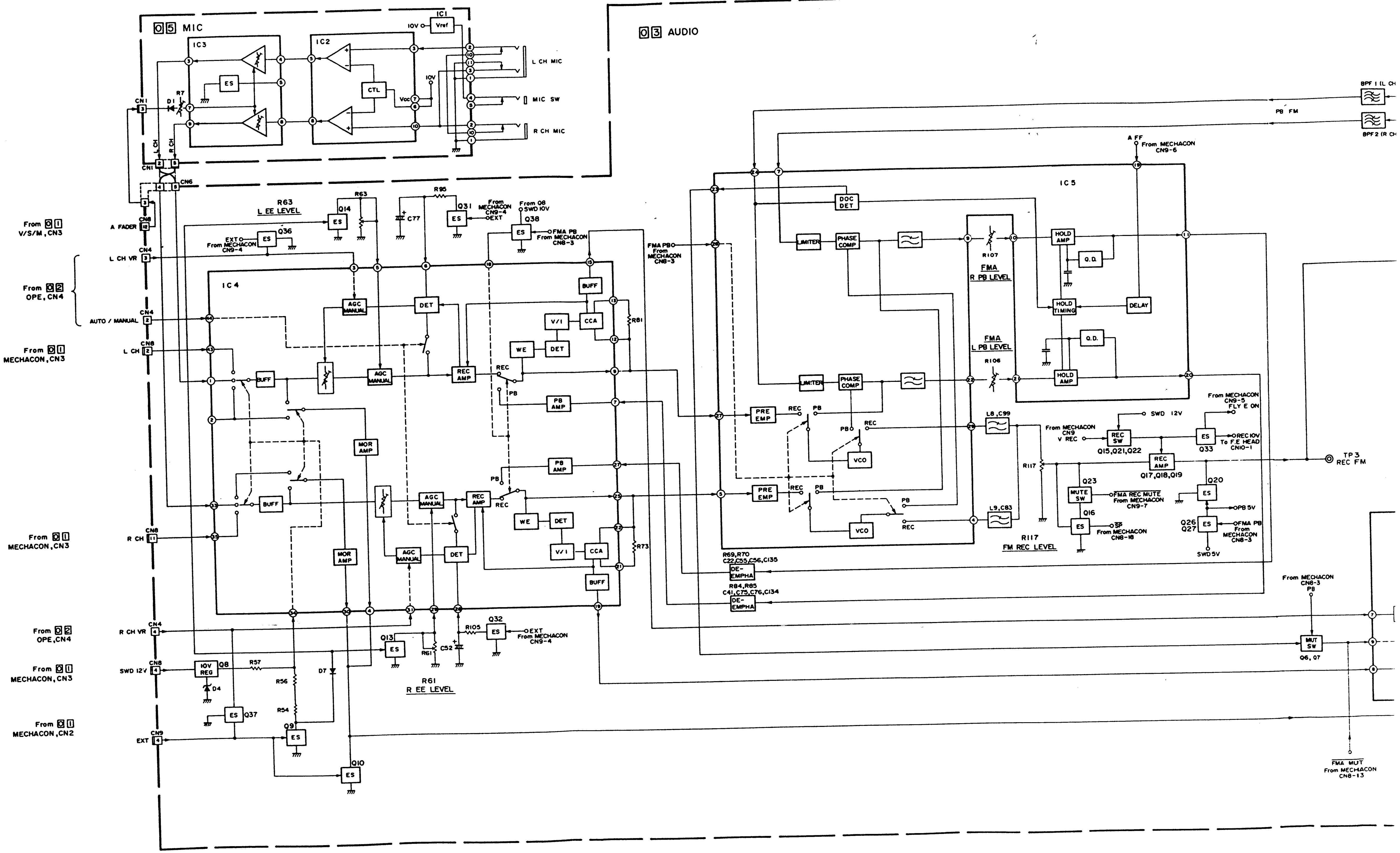
4.4 VIDEO BLOCK DIAGRAM



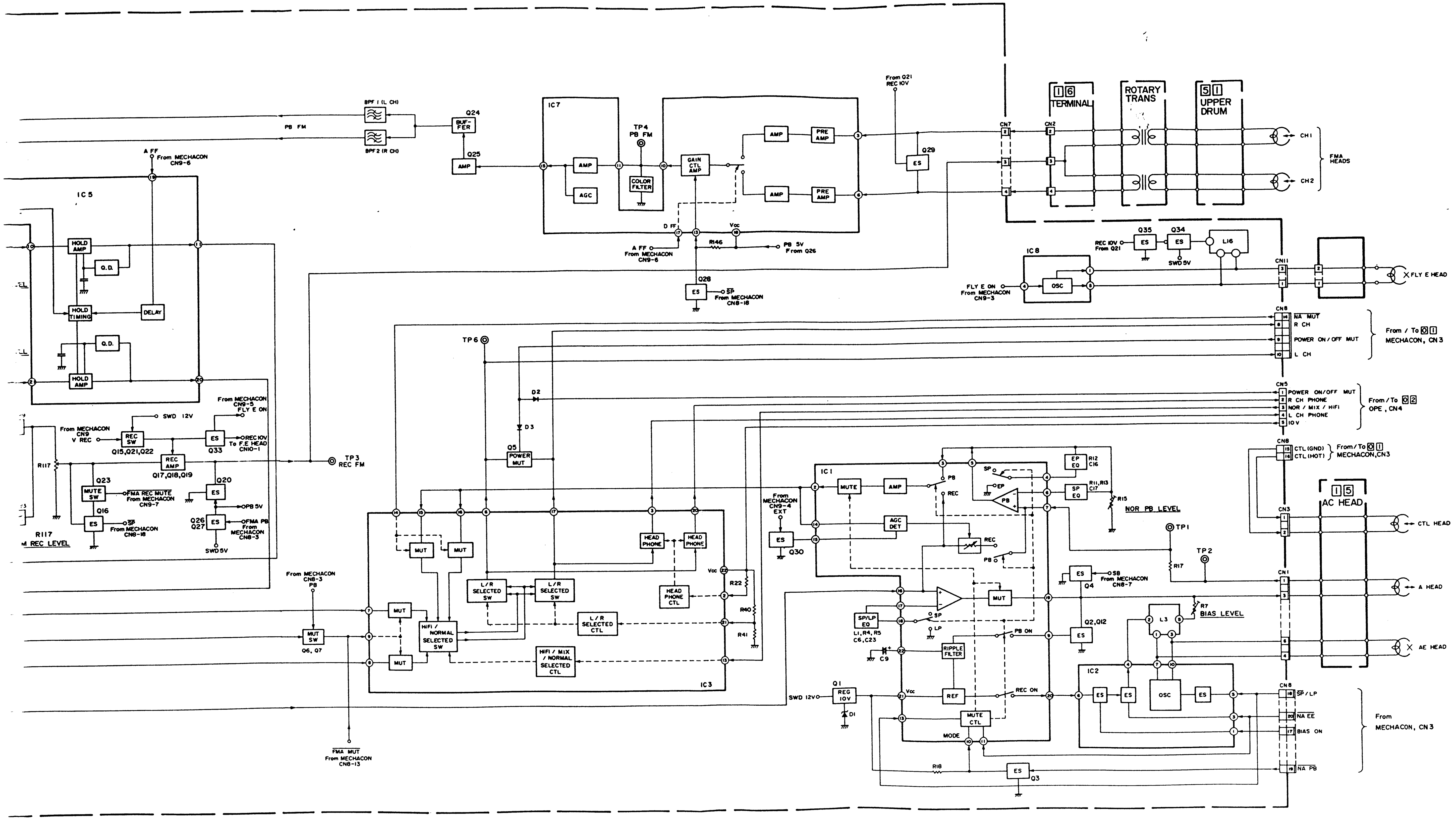
13 Y/C COMB
Y COMB-2
R24
R22
Y COMB-1
IC1
Y-COMB TP4
Y DET
VCA 3
PHASE SHIFTER
C DET
BPF 2
Q3
EF
EQ1
COMB FILTER LOGIC
DL1
2HDL
4HDL-C TP1
4HDL-C
R7
2H DL-C
TP3
2HDL-C
R5
TP2 C COMB
VCA 2
VCA 1
R33 Y COMB-3
PHASE SHIFTER
Q4
BPF 1
EF
Q1
R11
EQ2
Q2
EXT COMP Y LEVEL
CN1
CN21
01 VIDEO (V/S/M)
CAMERA Y IN
CN5
CN7
EXT V or Y IN
TP1 VIDEO IN
Q3
EF
IC5
EE·EXT·V(H)
IC2
VIDEO OUT TP10
CN10
VIDEO or Y OUT (To AV CONN)
PB or EXT S(H)
Y/C MIX AMP
Q16~20
Y/C SEP OUT(H)
R55
V OUT COLOR LEV
TP51 Y OUT
IC3
75Ω D AMP
CN11
Y OUT (To S CONN)
To E VF
EF Q21
EQ 2
TP52 C OUT
Q8
COLOR OUT (To S CONN)
Q11,12,26
COLOR AMP
Q10
COLOR OUT (To AV CONN)
Q9 Y/C SEP OUT:OFF
IC1
EXT S(H)
EXT COLOR IN
Q74
CN4
CAM COLOR IN
EXT(L)
IC6
EE(L)
Q43 EXT:OFF
IC8
CAM
EXT
AGC
AGC DET
EE
PB
EE EXT V
EE CAM
R111
EE Y LEVEL
SYNC SEP
SYNC OUT
Q44
Q45
CLAMP Y/C MIX
COLOR
CLAMP Y AMP
PB Y EQ AMP
SHARPNESS CONTROL
NOISE CANCELLER
CR D FILTER
Q50 S:ON
Q47 N-EDIT:ON
Q48 S EDIT:ON
V PULSE
R204 1HDL Y LEVEL
Q61 Q79 Q80
AMP
LPF 4
EF
Q60
IC11 1H DL CCD
Q37
5V
S:ON
TP21
1H DL PB Y TP26
PROCESS IN TP31
PROCESS OUT TP27
IC10
NON-LIN EMPH/DE-E
LPF 3
R191
PROCESS IN LEV
R188
R179
PROCESS OUT LEV
LPF 2
EQ1
EF
Q58
CLAMP
YNR (VHS PB)
IC301
REC
PB
BPF 301
ACC VCA
IC302
PILOT BLANKING
PB KILLER
ACC DET
CH-1
CH-2
2HDL
DL301
PB ACC FILTER
Q30
IC901
Q902,903
COLOR AMP
BURST GATE
BPF 901
4.43MHz AMP
R901,C902
LPF
COLOR DET(H) NO COLOR (L)
Q901
SYNC
EF
DL
L901 C906
R904
COLOR DET LEVEL
L903
TP901 COLOR DET
To IC11-3 1HDL CC
To IC302 PILC


01 PRE/REC (V/S/M)
R204 IHDL Y LEVEL
Q61 Q79 Q80
AMP
LPF 4
Q60 EF
IC11 IHDL CCD
Q37 S:ON
5V
TP21
IHDL PB Y TP26
PROCESS IN TP31
PROCESS OUT
TP27
IC10 NON-LIN EMPH/DE-E
LPF 3
R191
PROCESS IN LEV
R188 R179
PROCESS OUT LEV
LPF 2
EQ1
EF
Q58
CLAMP
YNR (VHS PB)
CLAMP IN TP25
N-W CLIP
R107
Q40 N:ON
R106
EXT EDIT:ON
Q34
W CLIP
5V
N-D CLIP
R109
Q41 N:ON
R108
D CLIP
DETAIL ENHANCER
MAIN EMPHASIS
TP34 EMPH OUT
R123:CARRIER
R119:DEVIATION
CARRIER & DEVIATION
R124:CARRIER
R120:DEVIATION
COLOR ROTATE
Q57
FM
REC FM TP33
Q55 EF
DROP OUT DETECTER
S REC FM LEV
R788
Q740
HPF
R796
Q741
N REC FM LEV
Y/C MIX
EF Q743
R801
REC COLOR LEVEL
IC703
MUTE
REC EQ AMP
EQ FILTER
Q729 REC MUTE :ON
Q728 S:ON
Q723 PB:ON
S VIDEO EQ
R735
S-VHS PB EQ AMP
Q709~711
Q715~718
VHS PB EQ AMP
R757
N VIDEO EQ
VHS(H) S-VHS(L)
Q53
C105,R153
HPF
LPF
C104,R151
S-VHS DET
LIMITER 1
LIMITER 2
DEMOD
MAIN DE EMPH
LPF S
LPF N
Q720
Q719
PB Y EQ AMP
SHARPNESS CONTROL
NOISE CANCELLER
CR D FILTER
Q50 S:ON
Q47 N-EDIT:ON
Q48 S EDIT:ON
CR FILTER
R143
5V
N-PB Y LEVEL
R144
Q52 N:ON
PB Y LEVEL
IC702
FM AGC
WIDE(H)
S-VHS HPF
VHS HPF
12dB
3dB
SP
LP
FM ENV DET
COMP
HEAD SEL LOGIC
SP FM TP706
LP FM TP704
IC701
SP CH-1 PRE AMP
SP CH-2 PRE AMP
LP CH-1 PRE AMP
LP CH-2 PRE AMP
SP-1 fo C712
SP-1 Q R710
Q704 REC:ON
TP701 REC CURRENT
SP-2 fo C710
SP-2 Q R715
REC:ON
Q702
LP-1 fo C709
LP-1 Q R713
REC :ON
Q701
LP-2 fo C711
R712
REC :ON
Q703
LP-2 Q
SP CH-1
SP CH-2
LP CH-1
LP CH-2
DRUM FF
SYNC
SEARCH(L)
Q747
IC301
REC
PB
BPF 301
ACC VCA
PILOT BURST LEVEL
R300
IC302
PILOT MIX (S REC)
PILOT BURST TP301
MAIN CONV
REC KILLER
REC LPF
PB COLOR TP8
PB FM TP6
LPF 301
Q305 EF
L308 C332 FMA TRAP
L307 C333 Fh TRAP
L306 C334 BIAS TRAP
Q306 BIAS ON:ON
IC302 PILOT BLANKING
PB KILLER
ACC DET
4 PHASE SHIFTER
IC302 PILOT DET
WIDE(H)
REC CH-1 CH-2
2H DL
DL301
PB ACC FILTER
Q301,309 SEARCH/STILL : ON
COLOR ROTATE
Q302 EF
BPF 302
SUB CONV
1/8
BGP GEN
361 Fh VCO
SYNC IN
R901,C902
LPF
COLOR DET(H) NO COLOR(L)
To IC11-3 IHDL CCD
CF301 3 Fs BPF
Q303 AMP
X3
4.43 MHz VXO
REC APC
PB APC
REC/PB AFC
COLOR KILLER
4.43MHz TP303
To IC302-17 PILOT
CR
Q304 PB:ON
APC/AFC FILTER
B/W (L)

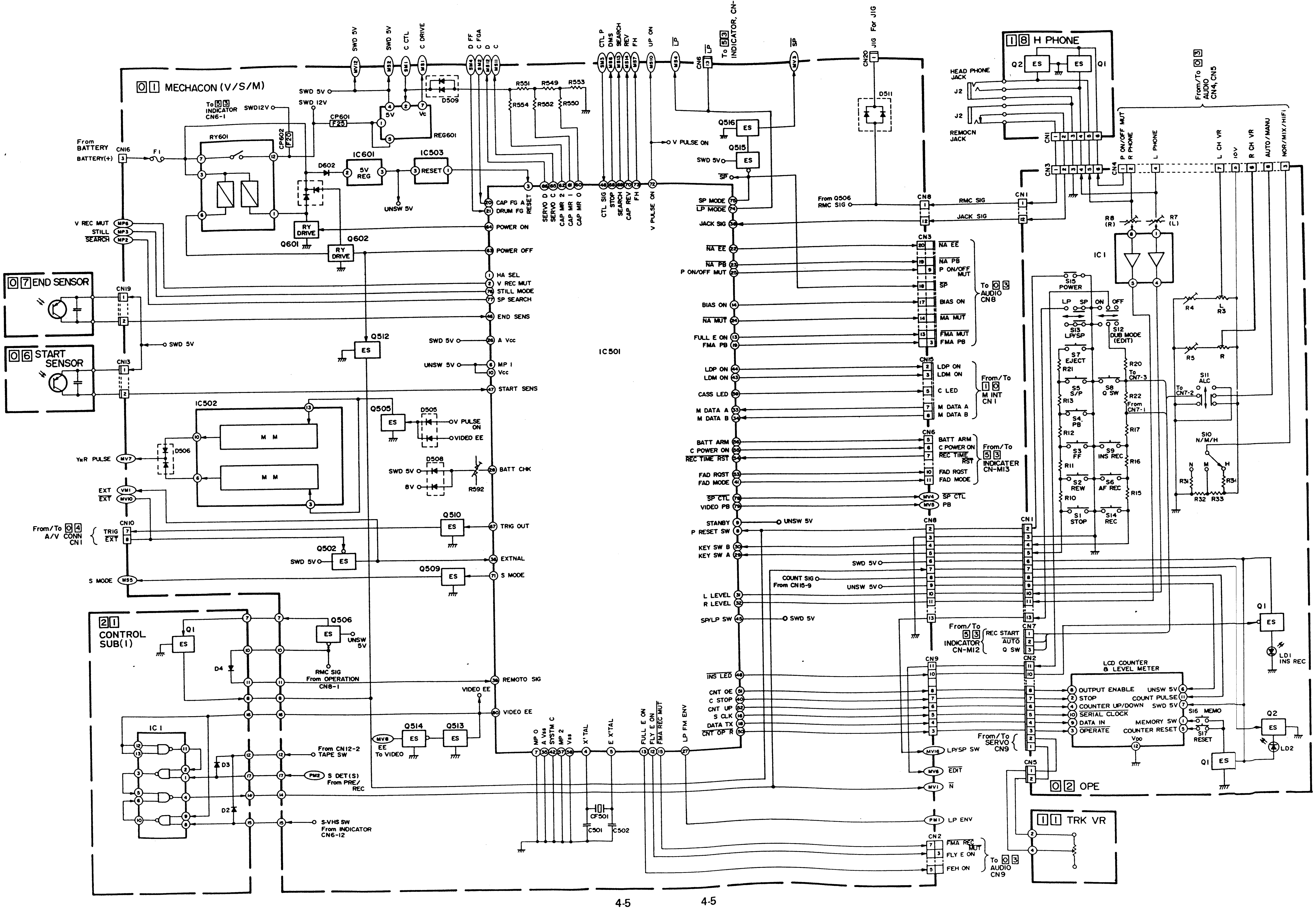
4.5 AUDIO BLOCK DIAGRAM



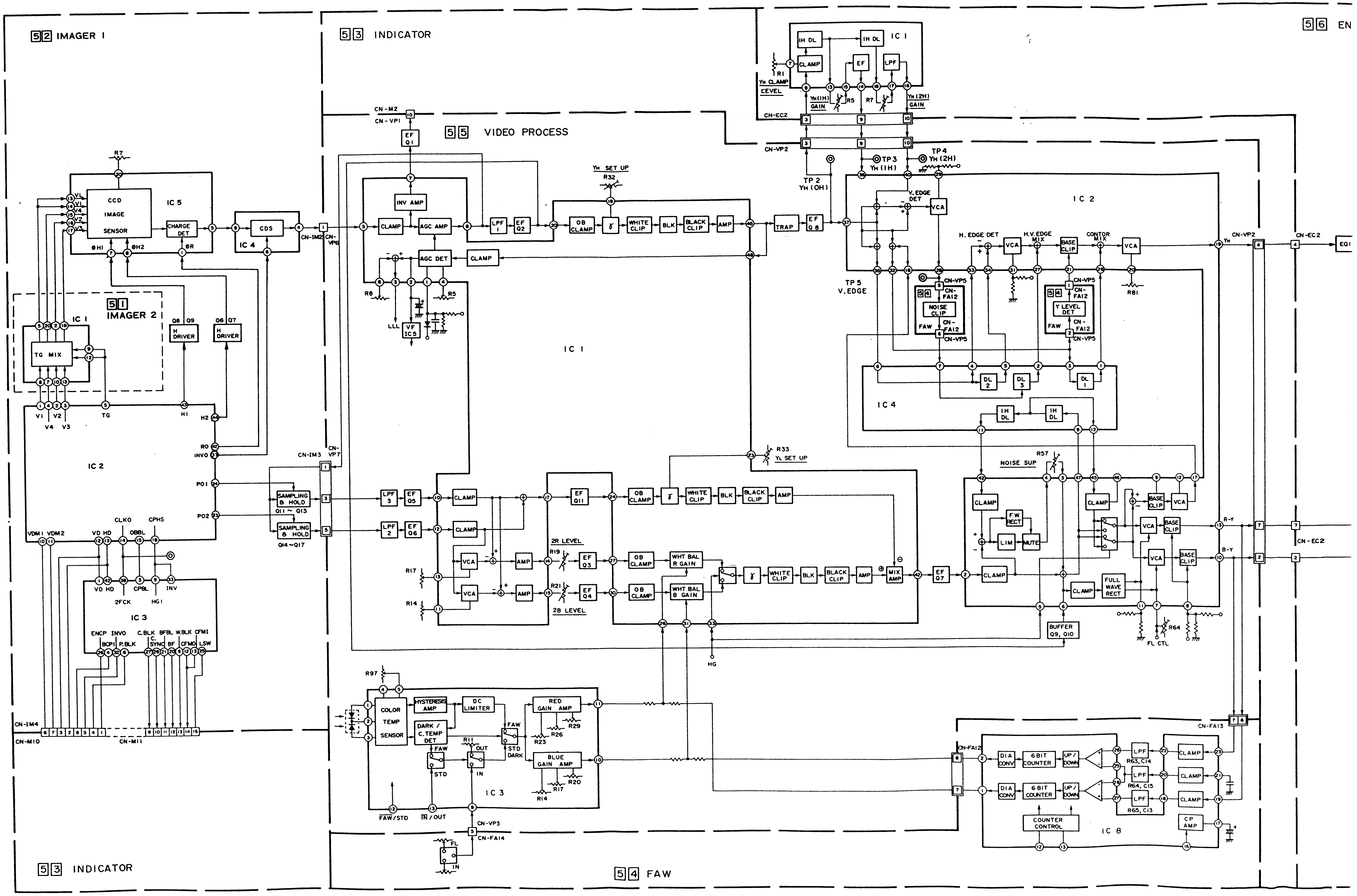
05 MIC
IC1
IC2
IC3
IC4
IC5
03 AUDIO
10V
Vref
ES
CTL
Vcc
L CH MIC
MIC SW
R CH MIC
CN1
CN6
CN8
CN4
CN9
D1
R7
L CH
R CH
From 01 V/S/M, CN3
A FADER
From 02 OPE, CN4
L CH VR
AUTO / MANUAL
From 01 MECHACON, CN3
From 01 MECHACON, CN3
R CH
From 02 OPE, CN4
R CH VR
From 01 MECHACON, CN3
SWD 12V
From 01 MECHACON, CN2
EXT
R63
L EE LEVEL
Q14
Q36
EXT
From MECHACON CN9-4
R95
C77
Q31
From MECHACON CN9-4
From Q8 SWD 10V
Q38
FMA PB From MECHACON CN8-3
AGC MANUAL
DET
BUFF
V/I
CCA
R81
WE
REC
PB
REC AMP
PB AMP
MOR AMP
R73
Q13
R61
C52
R105
Q32
From MECHACON CN9-4
R61
R EE LEVEL
10V REG
Q8
R57
R56
D7
D4
Q37
R54
Q9
Q10
FMA PB From MECHACON CN8-3
DOC DET
LIMITER
PHASE COMP
R107
FMA
R PB LEVEL
HOLD AMP
Q.D.
HOLD TIMING
DELAY
FMA
L PB LEVEL
R106
A FF
From MECHACON CN9-6
PB FM
BPF 1 (L CH
BPF 2 (R CH
PRE EMP
VCO
L8, C99
L9, C83
R117
FM REC LEVEL
From MECHACON CN9 V REC
REC SW
Q15, Q21, Q22
SWD 12V
From MECHACON CN9-5 FLY E ON
ES
Q33
REC 10V To F.E HEAD CN10-1
REC AMP
Q17, Q18, Q19
TP3 REC FM
Q23
MUTE SW
FMA REC MUTE From MECHACON CN9-7
Q16
SP From MECHACON CN8-18
Q20
PB 5V
Q26 Q27
FMA PB From MECHACON CN8-3
SWD 5V
R69, R70 C22, C55, C56, C135
DE-EMPHA
R84, R85 C41, C75, C76, C134
DE-EMPHA
From MECHACON CN8-3 PB
MUT SW
Q6, Q7
FMA MUT From MECHACON CN8-13

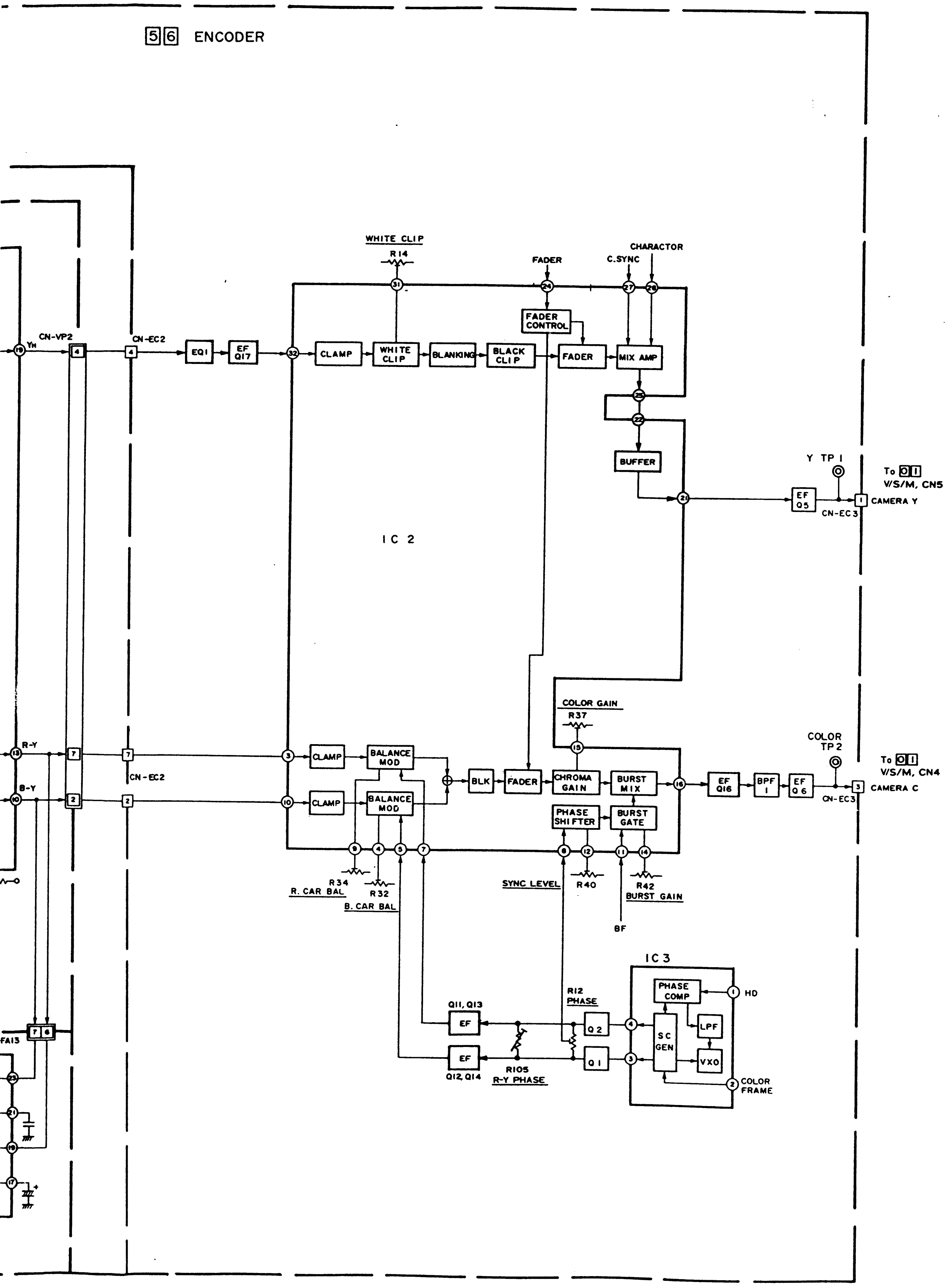

IC5
HOLD AMP
Q.D.
HOLD TIMING
DELAY
Q.D.
HOLD AMP
A FF From MECHACON CN9-6
From MECHACON CN9 V REC
REC SW
Q15,Q21,Q22
SWD 12V
REC AMP
Q17,Q18,Q19
ES
Q33
From MECHACON CN9-5 FLY E ON
REC 10V To F.E HEAD CN10-1
TP3 REC FM
R117
Q23
MUTE SW
FMA REC MUTE From MECHACON CN9-7
Q16
ES
SP From MECHACON CN8-18
Q20
ES
PB 5V
Q26 Q27
ES
FMA PB From MECHACON CN8-3
SWD 5V
R117
M REC LEVEL
BPF 1 (L CH)
BPF 2 (R CH)
PB FM
Q24
BUF-FER
Q25
AMP
IC7
AMP
AGC
TP4 PB FM
COLOR FILTER
GAIN CTL AMP
AMP
PRE AMP
AMP
PRE AMP
D FF
Vcc
A FF From MECHACON CN9-6
R146
PB 5V From Q26
Q28
ES
SP From MECHACON CN8-18
From Q21 REC 10V
Q29
ES
CN7
CN2
16 TERMINAL
ROTARY TRANS
51 UPPER DRUM
CH1
CH2
FMA HEADS
Q35
Q34
REC 10V From Q21
ES
ES
L16
SWD 5V
IC8
FLY E ON From MECHACON CN9-3
OSC
CN11
FLY E HEAD
CN8
NA MUT
R CH
POWER ON/OFF MUT
L CH
From / To 01 MECHACON, CN3
CN5
POWER ON/OFF MUT
R CH PHONE
NOR / MIX / HIFI
L CH PHONE
10V
From / To 02 OPE, CN4
CN8
CTL (GND)
CTL (HOT)
From/To 01 MECHACON, CN3
TP6
D2
D3
Q5
POWER MUT
MUT
MUT
L/R SELECTED SW
L/R SELECTED SW
HEAD PHONE
HEAD PHONE
HEAD PHONE CTL
L/R SELECTED CTL
HIFI / NORMAL SELECTED SW
HIFI / MIX / NORMAL SELECTED CTL
MUT
MUT
Vcc
R22
R40
R41
IC3
From MECHACON CN8-3 PB
MUT SW
Q6, Q7
FMA MUT From MECHACON CN8-13
IC1
MUTE
AMP
PB
REC
AGC DET
From MECHACON CN9-4 EXT
ES
Q30
REC
PB
SP
EP
PB
EP EQ
R12 C16
SP EQ
R11,R13 C17
R15
NOR PB LEVEL
TP1
TP2
R17
ES
Q4
S8 From MECHACON CN8-7
MUT
SP/LP EQ
L1,R4,R5 C6,C23
SP
LP
C9
RIPPLE FILTER
PB ON
Q2,Q12
ES
R7
BIAS LEVEL
L3
15 AC HEAD
CN3
CTL HEAD
CN1
A HEAD
AE HEAD
Q1
REG 10V
D1
SWD 12V
Vcc
REF
REC ON
MUTE CTL
MODE
IC2
ES
ES
OSC
ES
R18
ES
Q3
CN8
SP/LP
NA EE
BIAS ON
NA PB
From MECHACON, CN3

4.6 MECHACON BLOCK DIAGRAM


01 MECHACON (V/S/M)
IC501
IC601 5V REG
IC503 RESET
IC502
M M
RY601
RY DRIVE
Q601
Q602
REG601
CP601 F25
CP602 F20
D602
D509
D505
D506
D508
D511
R592
R551
R549
R553
R554
R552
R550
Q512
Q505
Q510
Q502
Q509
Q506
Q514
Q513
Q516
Q515
ES
From BATTERY CN16 BATTERY(+)
F1
To 53 INDICATOR CN6-1
SWD12V
SWD 5V
SWD 12V
UNSW 5V
V REC MUT
STILL
SEARCH
07 END SENSOR
06 START SENSOR
CN19
CN13
CN10
YxR PULSE
EXT
From/To 04 A/V CONN CN1
TRIG
S MODE
21 CONTROL SUB(1)
IC1
Q1
D4
D3
D2
RMC SIG From OPERATION CN8-1
From CN12-2 TAPE SW
S DET(S) From PRE/REC
S-VHS SW From INDICATOR CN6-12
VIDEO EE
EE To VIDEO
V PULSE ON
CAP FG A
DRUM FG
RESET
SERVO D
SERVO C
CAP MR 2
CAP MR 1
CAP MR 0
CTL SIG
STOP
SEARCH
CAP REV
FH
V PULSE ON
POWER ON
POWER OFF
HA SEL
V REC MUT
STILL MODE
SP SEARCH
END SENS
A Vcc
MP 1
Vcc
START SENS
BATT CHK
TRIG OUT
EXTNAL
S MODE
REMOTO SIG
VIDEO EE
MP 0
A Vss
SYSTM C
MP 2
Vss
X'TAL
E X'TAL
FULL E ON
FLY E ON
FMA REC MUT
LP FM ENV
CF501
C501
C502
SWD 5V
SWD 5V
C CTL
C DRIVE
D FF
C FGA
CTL P
DMS
SEARCH
REV
FH
UP ON
LP
CN6
To 53 INDICATOR, CN-M13
SP
CN20
JIG For JIG
SP MODE
LP MODE
JACK SIG
NA EE
NA PB
P ON/OFF MUT
BIAS ON
NA MUT
FULL E ON
FMA PB
LDP ON
LDM ON
CASS LED
M DATA A
M DATA B
BATT ARM
C POWER ON
REC TIME RST
FAD RQST
FAD MODE
SP CTL
VIDEO PB
STANBY
P RESET SW
KEY SW B
KEY SW A
L LEVEL
R LEVEL
SP/LP SW
INS LED
CNT OE
C STOP
CNT UP
S CLK
DATA TX
CNT OP R
From Q506 RMC SIG
RMC SIG
JACK SIG
CN8
CN3
To 03 AUDIO CN8
CN15
From/To 10 M INT CN1
CN6
From/To 53 INDICATER CN-M13
CN8
COUNT SIG From CN15-9
CN9
CN2
From/To 53 INDICATOR CN-M12
REC START
AUTO
Q SW
From/To SERVO CN9
LP/SP SW
EDIT
N
LP ENV
FMA REC MUT
FLY E ON
FEH ON
To 03 AUDIO CN9
18 H PHONE
Q2
Q1
HEAD PHONE JACK
J2
REMOCN JACK
CN1
CN3
CN4
From/To 03 AUDIO CN4, CN5
P ON/OFF MUT
R PHONE
L PHONE
L CH VR
10V
R CH VR
AUTO/MANU
NOR/MIX/HIFI
R8 (R)
R7 (L)
IC1
S15 POWER
LP SP ON OFF
S13 LP/SP
S12 DUB MODE (EDIT)
S7 EJECT
S5 S/P
S8 Q SW
S4 PB
S3 FF
S9 INS REC
S2 REW
S6 AF REC
S1 STOP
S14 REC
R21
R13
R12
R11
R10
R20
R22
R17
R16
R15
To CN7-3
From CN7-1
R4
R3
R5
R
To CN7-2
S11 ALC
S10 N/M/H
N M H
R31
R32
R33
R34
CN1
CN7
CN2
CN5
LCD COUNTER & LEVEL METER
OUTPUT ENABLE
STOP
COUNTER UP/DOWN
SERIAL CLOCK
DATA IN
OPERATE
UNSW 5V
COUNT PULSE
SWD 5V
S16 MEMO
MEMORY SW
S17 RESET
COUNTER RESET
VDD
Q1
Q2
LD1 INS REC
LD2
02 OPE
11 TRK VR

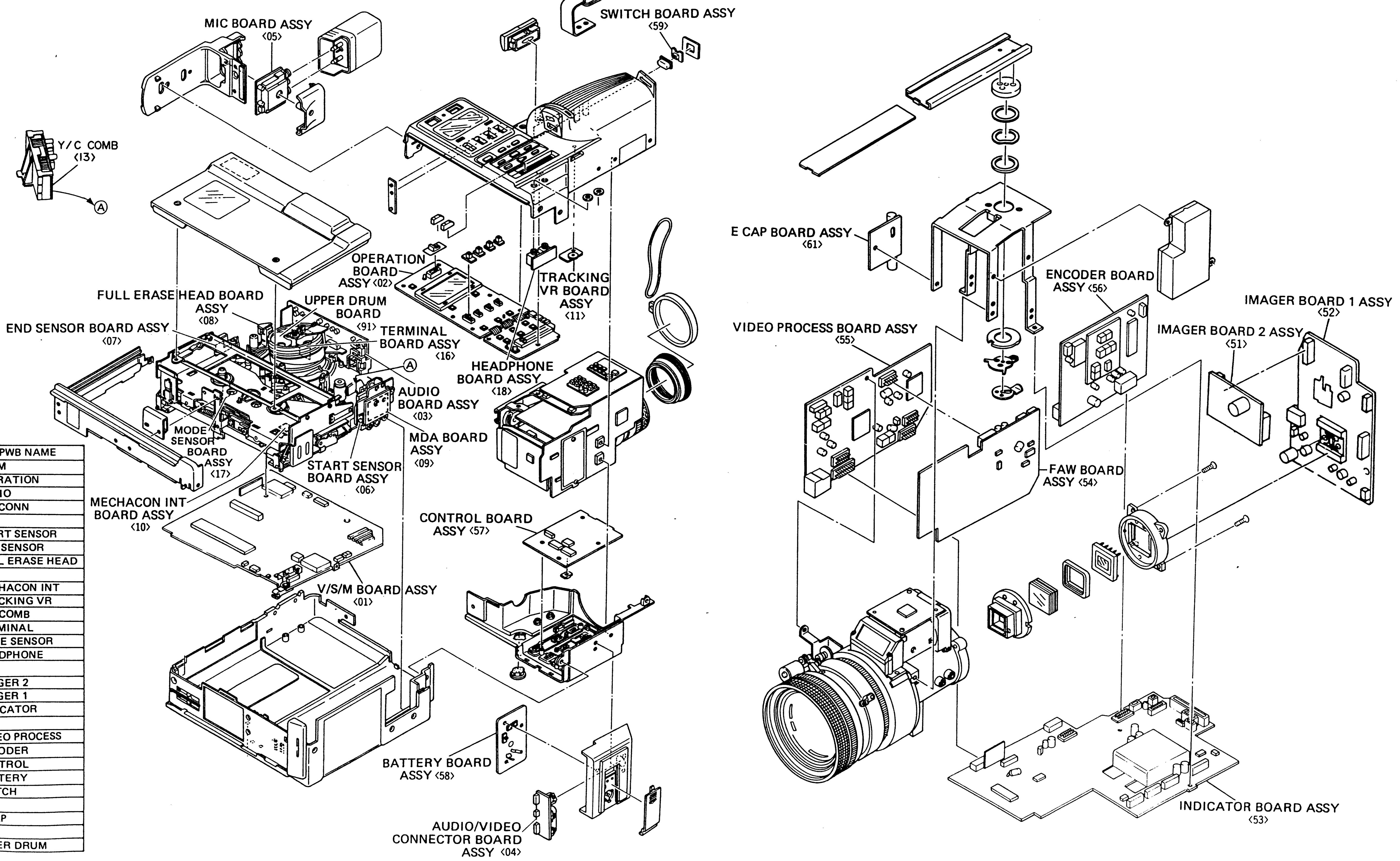
4.7 CAMERA VIDEO BLOCK DIAGRAM


52 IMAGER 1
53 INDICATOR
55 VIDEO PROCESS
56 EN
51 IMAGER 2
54 FAW
53 INDICATOR
CCD IMAGE SENSOR
IC 5
CHARGE DET
CDS
IC 4
IC 1
TG MIX
H DRIVER
Q8 Q9
Q6 Q7
IC 2
IC 3
SAMPLING & HOLD
Q11 ~ Q13
Q14 ~ Q17
CN-M2
CN-VP1
CN-IM2
CN-VP6
CN-IM3
CN-VP7
CN-IM4
CN-M10
CN-M11
EF Q1
INV AMP
CLAMP
AGC AMP
AGC DET
LPF 1
EF Q2
VF IC5
LLL
R7
R8
R5
OB CLAMP
γ
WHITE CLIP
BLK
BLACK CLIP
AMP
YH SET UP
R32
YL SET UP
R33
TRAP
EF Q8
IH DL
YH CLAMP LEVEL
YH (1H) GAIN
YH (2H) GAIN
EF
LPF
R1
CN-EC2
CN-VP2
TP 2 YH (0H)
TP3 YH (1H)
TP4 YH (2H)
TP 5 V.EDGE
V.EDGE DET
VCA
H.EDGE DET
H.V.EDGE MIX
BASE CLIP
CONTOR MIX
NOISE CLIP
Y LEVEL DET
CN-FA12
CN-VP5
FAW
R81
DL 1
DL 2
DL 3
IC 4
NOISE SUP
R57
F.W. RECT
LIM
MUTE
FULL WAVE RECT
BUFFER Q9, Q10
R64
FL CTL
LPF 3
LPF 2
EF Q5
EF Q6
EF Q11
EF Q3
EF Q4
EF Q7
VCA
2R LEVEL
2B LEVEL
R19
R21
R17
R14
WHT BAL R GAIN
WHT BAL B GAIN
MIX AMP
HG
R-Y
B-Y
YH
EQ
V1 V2 V4 V3
TG
H1 H2
RO
INVO
PO1
PO2
VDM1 VDM2
VD HD
OBBL
CLKO
CPHS
2FCK
CPBL
HG1
INV
ENCP INVO C.BLK BFBL W.BLK CFM1
BCP1 P.BLK C.SYNC BF CFMO LSW
ØH1 ØH2 ØR
R97
COLOR TEMP SENSOR
HYSTERESIS AMP
DC LIMITER
DARK / C.TEMP DET
RED GAIN AMP
BLUE GAIN AMP
R11
R23
R26
R29
R20
STD
DARK
OUT
IN
FAW/STD
IN/OUT
CN-VP3
CN-FA14
FL
CN-FA13
D/A CONV
6BIT COUNTER
UP/DOWN
COUNTER CONTROL
IC 8
CP AMP
R63, C14
R64, C15
R65, C13


5 6 ENCODER
WHITE CLIP
R14
FADER
C.SYNC
CHARACTOR
31
24
27
28
CN-VP2
CN-EC2
19
YH
4
EQ1
EF Q17
32
CLAMP
WHITE CLIP
BLANKING
BLACK CLIP
FADER CONTROL
FADER
MIX AMP
25
22
BUFFER
21
Y TP 1
EF Q5
CN-EC3
1
To 0 1 V/S/M, CN5
CAMERA Y
IC 2
COLOR GAIN
R37
15
COLOR TP 2
R-Y
13
7
CN-EC2
B-Y
10
2
3
CLAMP
BALANCE MOD
BLK
FADER
CHROMA GAIN
BURST MIX
16
EF Q16
BPF 1
EF Q6
CN-EC3
3
To 0 1 V/S/M, CN4
CAMERA C
PHASE SHIFTER
BURST GATE
9
4
5
7
8
12
11
14
R34
R. CAR BAL
R32
B. CAR BAL
SYNC LEVEL
R40
R42
BURST GAIN
BF
IC 3
PHASE COMP
HD
1
R12
PHASE
Q11, Q13
EF
Q2
SC GEN
LPF
VXO
Q1
EF
Q12, Q14
R105
R-Y PHASE
COLOR FRAME
2
FA13
7
6
23
21
19
17

SECTION 5
SCHEMATIC DIAGRAMS AND CIRCUIT BOARDS

5.1 CIRCUIT BOARD LOCATIONS

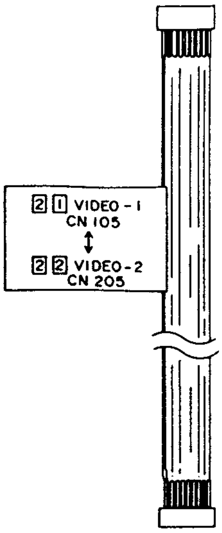

MIC BOARD ASSY ‹05›
SWITCH BOARD ASSY ‹59›
Y/C COMB ‹13›
Ⓐ
OPERATION BOARD ASSY ‹02›
TRACKING VR BOARD ASSY ‹11›
FULL ERASE HEAD BOARD ASSY ‹08›
UPPER DRUM BOARD ‹91›
END SENSOR BOARD ASSY ‹07›
TERMINAL BOARD ASSY ‹16›
Ⓐ
HEADPHONE BOARD ASSY ‹18›
AUDIO BOARD ASSY ‹03›
MODE SENSOR BOARD ASSY ‹17›
MDA BOARD ASSY ‹09›
START SENSOR BOARD ASSY ‹06›
MECHACON INT BOARD ASSY ‹10›
CONTROL BOARD ASSY ‹57›
V/S/M BOARD ASSY ‹01›
BATTERY BOARD ASSY ‹58›
AUDIO/VIDEO CONNECTOR BOARD ASSY ‹04›
E CAP BOARD ASSY ‹61›
ENCODER BOARD ASSY ‹56›
IMAGER BOARD 1 ASSY ‹52›
VIDEO PROCESS BOARD ASSY ‹55›
IMAGER BOARD 2 ASSY ‹51›
FAW BOARD ASSY ‹54›
INDICATOR BOARD ASSY ‹53›

No.	PWB NAME
01	V/S/M
02	OPERATION
03	AUDIO
04	A/V CONN
05	MIC
06	START SENSOR
07	END SENSOR
08	FULL ERASE HEAD
09	MDA
10	MECHACON INT
11	TRACKING VR
13	Y/C COMB
16	TERMINAL
17	MODE SENSOR
18	HEADPHONE
51	IMAGER 2
52	IMAGER 1
53	INDICATOR
54	FAW
55	VIDEO PROCESS
56	ENCODER
57	CONTROL
58	BATTERY
59	SWITCH
61	E CAP
91	UPPER DRUM

8. Definition of the surface and the back of circuit board diagrams
   Front : Side on which discrete parts are assembled
   Rear : Side on which chip parts are assembled

9. Patchcords
   Patchcords are available for blue shaded portions of the overall circuit diagram.
   The patchcords are provided with tags to indicate connection points. Connect as indicated.

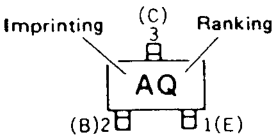
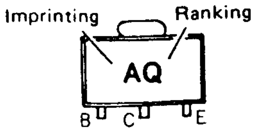
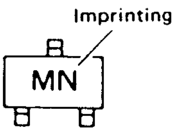
   Example: As shown in the Figure, connect one side to VIDEO-1 board CN105 and the other to VIDEO-2 board CN205.



5.3 CHIP TRANSISTOR AND CHIP DIODE IMPRINTING

1. Additional compactness is achieved by using subminiature chip parts for certain circuit elements. When replacing these parts, note the cautions outlined below.

   Chip transistors and diodes used in this model are outlined as follows.

Transistors				Diodes	
Type	Imprinting	Type	Imprinting	Type	Imprinting
DTA124EU	15	2SB709Q	AQ	DAN202K	N
DTA124EK	15	2SB766(RS)	AR, AS	DAN202U	N
DTA144WU	76	2SC2404C	UC	DAP202U	P
DTC124EK	25	2SC2412K	BQ ~ BS	DA204U	K
DTC124EU	25	2SC2413K(Q)	AQ	MA141A	MA
DTC144EK	26	2SC2480	R	MA141K	MH
DTC144EU	26	2SC2778C	KC	MA141WA	MN
DTC144WU	86	2SC3936(BC)	KB, KC	MA141WK	MT
FMC2	C2	2SC4081(QR)	BQ ~ BS	MA143	MC
FMG1	G1	2SC4116(YGL)	LY ~ LL	MA151WA	MN
FMG2	G2	2SC4176	B33 ~ B35	MA151WK	MT
FMS1	S1	2SD1328S,T	1DS, 1DT	MA153	MC
FMU1	U1	2SD1383K	WA, WB	MA157	MR
FMW1	W1	2SD1819(RS)	YR, YS	RD11M-T1B2	112
FMW3	W3	2SD602(QR)	WR	RD11M-T2B2	112
2SA1022C	EC	2SD814R	PR		
2SA1036K(QR)	HQ, HR	2SJ84Q,R	1MQ, 1MR		
2SA1037K(Q)	FG	2SK198P,Q	10P, 10Q		
2SA1532(BC)	EB, EC	2SK620	3N		
2SA1576	FQ ~ FS	3SK157	J15		
2SA1586(YG)	SY, SG				
2SA1610	Y33, Y34				
2SB1218(QR)	AQ, AR				
					

Note : ( ) refers to Transistor rank.

5.2 SCHEMATIC DIAGRAM NOTE

1. parts are safety related parts. When replacing them, be sure to use the specified parts.

2. Voltage and waveform measurment condition

- **DECK**

Voltage : DC-measured with a digital voltmeter during recording (SP with S-VHS mode) and play back (SP with S-VHS mode) with alignment tape. Where voltage differ between recording and playback, the voltage during playback is shown in parenthese.

Waveform :

VIDEO System; Measured with a color bar during recording (SP with S-VHS mode) with alignment tape.

AUDIO System; Measured with 1 kHz (–8 dBs) during recoding and with alignment tape (1 kHz) during playback.

- **CAMERA**

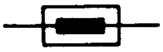
Voltage : Measured with a digital voltmeter in DC range; iris closed. (lens cap on)

Waveform : Measured as the grey scale pattern which lighted up brightly is shot in the Full-Auto mode.

3. Unit indications

No units:[Ω]	No units:[μF]	No units:[μH]
K:[kΩ]	P:[pF]	m:[mH]
M:[MΩ]		

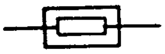
Thermistor

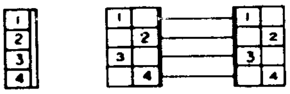


Thermal Fuse

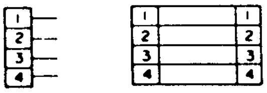
Circuit Protector

Posistor

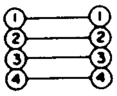




: Connector



: Board in connector



: Direct connection

COUNT UP : Active only at high.

$\overline{\text{COUNT DOWN}}$: Active only at low.

VS : Connected pattern in the board.

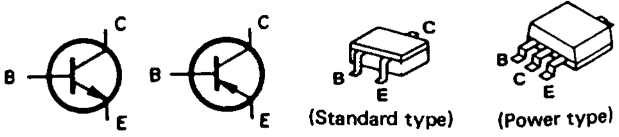
Abbreviations

MS V : Video M : Mechacon

SM S : Servo A : Audio

VS : Signal flow from video to servo.

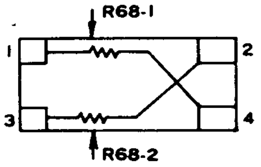
4. Chip transistor



(Standard type) (Power type)

5. Double chip resistors

These devices contain two resistance elements of differing values. In the example shown in the figure, R68 is comprised of R68-1 between terminals 1 and 4, and R68-2 between terminals 2 and 3.



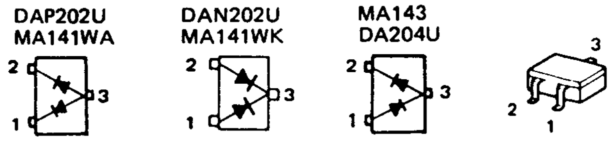
R68 PU59735-472Y103

472 indicates 4.7 kΩ for R68-1

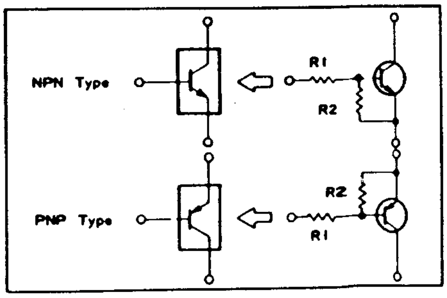
103 indicates 10 kΩ for R68-2

As can be noted from the figure, left-right reversal of the device does not change the connection values. However, turning the device upside-down will result in incorrect connectin.

6. Chip diode



7. Digital transistor



RESISTOR VALUES

JUNCTION	Part No.	R1 (kΩ)	R2 (kΩ)
PNP	DTA124EK	22	22
	DTA124EU	22	22
	DTA144WU	47	22
NPN	DTC124EK	22	22
	DTC124EU	22	22
	DTC144EU	47	47
	DTC144WU	47	22

Note: The digital transistor includes built in resistors.
It features small size and high reliability.
Both PNP and NPN types are available.

USES: INVERTER, INTERFACE, DRIVER CIRCUITS.

I	IC	Integrated Circuit
	ID	Identification (Pulse)
	IF	Intermediate Frequency
	IFR	Infrared
	IFT	Intermediate Frequency Transformer
	IND	Indicator
	INH	Inhibit
	INS	Insert
	INT	Internal, Interrupt
	INV	Inverter, Interleave
	I/O	Input/Output
	IR	Infrared
L	L	Low, Left
	LCD	Liquid Crystal Display
	LED	Light Emitting Diode
	LIM	Limiter
	LIN	Linearity
	LLD	Low Light Detector
	LOAD	Loading (Cassette)
	LP	Long Play
	LPF	Lowpass Filter
	LSB	Lower Sideband
M	M	Motor, Mega
	MAX	Maximum
	MDA	Motor Drive Amplifier
	MECHACON	Mechanism Control
	MIC	Microphone
	MIN	Minimum
	MIX	Mixer, Mixing
	MMV	Monostable Multivibrator
	MNOS	Metal Nitride Oxide Semiconductor
	MOD	Modulation, Modulator
	MODEM	Modulator-Demodulator
	MON	Monitor
	MOS	Metal Oxide Semiconductor
	MPX	Multiplexer, Multiplex
	MS	Mode Select
	MUT	Muting
N	NAND	Not-And
	NC	Not Connected, Normally Closed
	NFB	Negative Feedback
	NLN	Non-Linear
	NO	Normally Open
	NOR	Normal, Not-Or
	NR	Noise Reduction
O	OP	Operation
	OPAMP	Operational Amplifier
	ORG	Orange
	OSC	Oscillator
P	PB	Playback
	PC	Photocoupler, Pulse Counter
	PCM	Pulse Code Modulation
	PG	Pulse Generator
	PGM	Program
	PI	Photo Interrupter
	PIC	Picture Control
	PIF	Picture Intermediate Frequency
	PLA	Programmable Logic Array
	PLL	Phase Locked Loop
	PNK	Pink
	POS	Position
	p-p	Peak-to-Peak
	PR	Pinch Roller
	PREAMP	Preamplifier
	PRL	Preroll
	P/S	Pause/Still
	PSC	Pulse Swallowing Control
	PU	Pickup
	PUT	Programmable Unijunction Transistor
	PWB	Printed Wiring Board
	PWM	Pulse Width Modulation
	PWR	Power
Q	Q	Quality Factor
R	R	Red, Right
	RA	Resistor Array
	RAM	Random Access Memory
	REC	Recording
	REF	Reference
	REG	Regulated, Regulator
	REM	Remote
	REMOCON	Remote Control (Unit)
	REV	Reverse
	REV S	Reverse Search
	REW	Rewind
	RF	Radio Frequency
	ROM	Read Only Memory
	R/P	Record/Playback
	RPT	Repeat
	RS FF	RS Flipflop
	RST	Reset
	RT	Rotary Transformer
	RUN	Running
	RY	Relay
S	SAW	Sawtooth, Surface Acoustic Wave
	SC	Subcarrier, Simulcast
	SCH	Search
	SEL	Select, Selector
	SENS	Sensor
	SEP	Separator
	SF	Source Follower
	SFF	Short Fast Forward
	SIF	Sound Intermediate Frequency
	SN	Signal to Noise Ratio
	SOL	Solenoid
	SOS	Sound on Sound
	SP	Standard Play
	SR	Supply Reel
	SREW	Short Rewind
	S/S	Slow/Still
	SSG	Sync Signal Generator
	SSNS	Start Sensor
	STD	Strobe Data, Standard
	SUP	Supply
	SW	Switch
	SWD	Switched
	SYNC	Synchronization
T	TAL	Tally
	TBC	Time Base Corrector
	TC	Tension Control, Time Code
	TEN	Tension
	TF	Thermal Fuse
	TIM	Timing
	TK	Tracking
	TNR	Tuner
	TP	Test Point
	TPZD	Trapezoid
	TR	Transistor, Trimmer
	TRANS	Transformer
	TU	Take-up
U	UL	Unloading
	UNREG	Unregulated
	UNSW	Unswitched
V	V	Vertical, Volt
	VACT	Video Action
	VCO	Voltage Controlled Oscillator
	VD	Vertical Drive
	VIF	Video Intermediate Frequency
	VLT	Violet
	VR	Variable Resistor
	VS	Video and Sync
	VSCH	Variable Search
	VV	Video to Video
	VXO	Variable Crystal Oscillator
W	W	Watt
	WARN	Warning
	W & D	White and Dark
	WHT	White
	WV	Working Voltage
X	XTAL	Crystal
Y	Y	Luminance
	YEL	Yellow

5.4 KEY TO ABBREVIATIONS

A	AC	: Alternating Current
	ACC	: Automatic Color Control
	A/CTL	: Audio/Control
	ADC	: Analog to Digital Converter
	ADD	: Adder
	ADJ	: Adjustment
	AE	: Audio Erase
	AEF	: Automatic Editing Function
	AF	: Auto Focus
	AFC	: Automatic Frequency Control
	AFT	: Automatic Fine Tuning
	AGC	: Automatic Gain Control
	AH	: Audio Head
	AL	: After Loading, Allways
	ALC	: Automatic Light Compensation Automatic Level Control
	ALM	: Alarm
	ALU	: Arithmetic Logic Unit
	AM	: Amplitude Modulation
	AMP	: Amplifier
	ANT	: Antenna
	APC	: Automatic Pedestal Control Automatic Phase Control
	APL	: Average Picture Level
	A/S/M	: Audio/Servo/Mechacon
	ASS'Y	: Assembly
	ATT	: Attenuator
	AUD	: Audio
	AUTO	: Automatic
	AUX	: Auxiliary
B	B	: Base, Blue
	BAL	: Balance
	BATT	: Battery
	BBD	: Bucket Brigade Device
	BCD	: Binary Coded Decimal
	BEG	: Beginning
	BF	: Behind Focus
	BFP	: Burst Flag Pulse
	BPF	: Band Pass Filter
	BIT	: Binary Digit
	BLK	: Black, Blanking
	BLU	: Blue
	BNC	: Bayonet Connector
	BOT	: Beginning of Tape
	BPF	: Bandpass Filter
	BRK	: Brake
	BRN	: Brown
	BRT	: Brightness
	BT	: Band Tuning
	BUFF	: Buffer
	BW or B/W	: Black and White
C	C	: Capacitance, Collector, Color, Character
	CA	: Camera
	CAL	: Calibration
	CAP	: Capstan, Capacitor
	CAR	: Carrier
	CARR	: Carrier
	CASS	: Cassette
	CC	: Cassette Compartment
	CCD	: Charge Coupled Device
	CCT	: Circuit
	CdS	: Cadmium Sulphide
	CD	: Count Down
	CE	: Chip Enable
	CF	: Ceramic Filter, Color Frame, Correct Focus
	CH	: Channel
	CHG	: Charge
	CHROMA	: Chrominance
	CLK	: Clock
	CLR	: Clear
	CMD	: Command
	CMOS	: Complementary Metal Oxide Semiconductor
	CNT	: Count, Counter
	COL	: Color
	COM	: Common
	COMB	: Combination Comb Filter
	COMP	: Comparator Composite Compensation
	CONN	: Connector
	CONV	: Converter
	CP	: Circuit Protector Clamp Pulse
	CPC	: Capstan Phase Control
	CPU	: Central Processing Unit
	CTC	: Crosstalk Cancel
	CTL	: Control
D	D	: Drum, Digital, Diode, Drain
	DAC	: Digital to Analog Converter
	dB	: Decibel
	DC	: Direct Current
	DD	: Direct Drive
	DEC	: Decoder
	DEMOD	: Demodulator
	DEMUX	: Demultiplexer
	DET	: Detector
	DEV	: Deviation
	DFRS	: Drum Free Running Stop
	DG	: Differential Gain
	DIF	: Differential
	DISCR	: Discriminator
	DL	: Delay Line
	DOC	: Dropout Compensator
	DOD	: Drop Out Detector
	DP	: Differential Phase
	DPC	: Drum Phase Control
	DYAC	: Dynamic Aperture Control
E	E	: Edit, Emitter
	EDP	: Electronic Data Processing
	E-E	: Electric to Electric
	EF	: Emitter-Follower
	EMP	: Emphasis
	EN	: Enable
	ENC	: Encoder
	ENV	: Envelope
	EOT	: End of Tape
	EP	: Extended Play
	EQ	: Equalizer
	ES	: Electronic Switch
	ESNS	: End Sensor
	EXP	: Expander
	EXT	: External
F	F	: Farad, Fuse
	F ADV	: Frame Advance
	FDP	: Fluorescent Display Panel
	FE	: Full Erase
	FET	: Field Effect Transistor
	FF	: Fast Forward, Front Focus Flipflop
	FG	: Frequency Generator
	FM	: Frequency Modulation
	FR	: Full Recording, Frame, Fusible Resistor
	FREQ	: Frequency
	F-V CONV	: Frequency to Voltage Converter
	FWD	: Forward
	FWD S	: Forward Search
G	G	: Green, Gate, Grid
	GEN	: Generator
	GND	: Ground
	GRN	: Green
	GRY	: Gray
H	H	: High, Henry, Hour
	HBF	: Horizontal Burst Flag
	HD	: Horizontal Drive
	HPF	: Highpass Filter
	Hz	: Herz

5.5 SEMICONDUCTOR SHAPES

	NAME	L
	IC	
A	AN2276S	5D
	AN3926S	4B
	AN3994NS	4B
	AN608P	2B
	AN6299NC	4A
	AN6308S	1A
	AN6392	3D
	AN6671K	5A
	AN78L09	2A
	AN8005	2A
	AN8010	2A
B	BAF6305	1B
	BA6209U2	6B
	BA7007F	4E
	BA7021	5B
	BA7125L	3F
	BA7131F	1A
	BA7233	3E
	BU2710FA	6C
	BU4030BF	1B
	BU4053BF	1B
	BX7469	4F
	BX7495W	4C
	BX7644W	4C
	BY7470	2C
C	CXL5003M	1A
E	EHD-AW2642	1D
	EHMC4752C18S	5C
H	HA11752MP	7B
	HA118019NT	7A
	HA118029MP	7E
	HA118090MA	4A
	HA118092FP	6A
	HD63705Z0F-CV14	3B
M	MC8089	3D
	MC8181D	1E
	MN4071BS	1B
	MN4081BS	1B
	M51458FP	7C
	M51647FP	5D
	M5223FP	1A
	M5236ML	3A
	M54641FP	2E
	M52074FP	6F
N	NJM2233AM	1A
	NJM2234M	1A
	NJM2244M	1A
	NJM2902E	1B
S	S-8054HN	2A
	S-81250HG	2A
T	TA8609P	2C
	TA8733F	7C
	TC4S01F	6D
	TC4S69F	6D
	TC4S81F	6D
	TC7S04F	5F
	THE171F	4D
	THE172	1F
	TME167A	3C
U	UPC2371GH	2D
	UPC2373GH	2D
	UPC324G	1B
	UPD4011BG	1B
	UPD4538BG	4E
	UPD6147G	4A
	UPD9313AGB	4A
	UPD9314AGB	4A
	UPD9316G	4A
	UPD9317G	4A
V	VC2024A	2F
	VC2028	2F
	VC2031MP	7B
	VC2034	5E
	VC2040	7D
	VC2041	7C
	VC2042	1C
Y	YB20005A	6E
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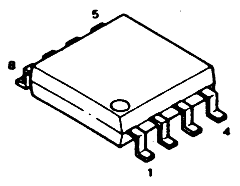
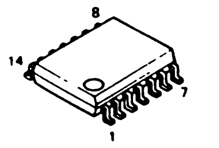
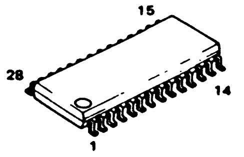
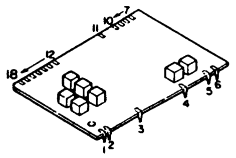
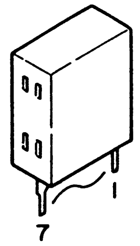
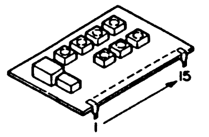
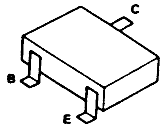
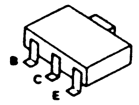
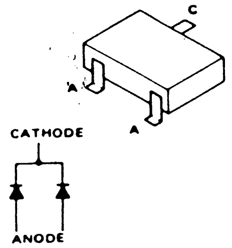
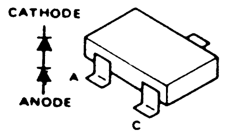
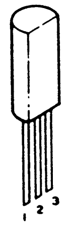
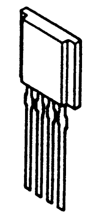
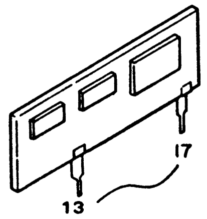
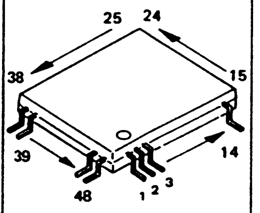
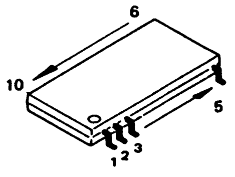
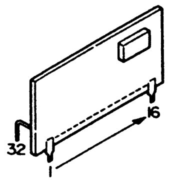
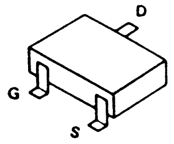
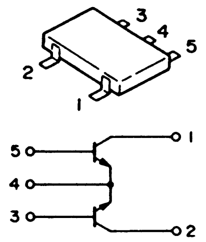
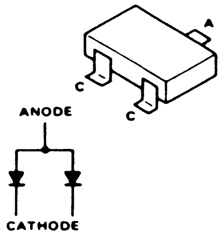
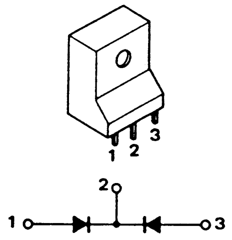
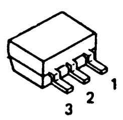
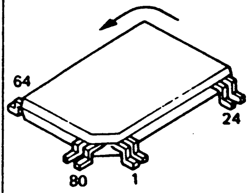
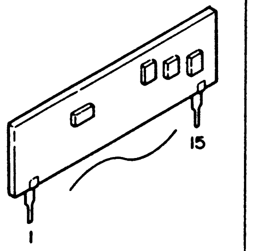
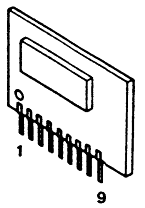
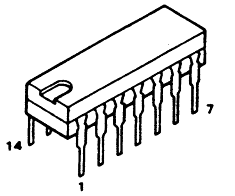
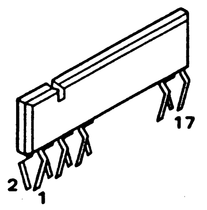
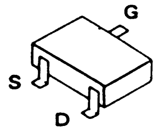
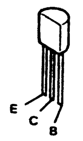
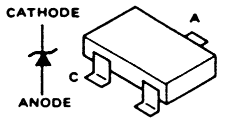
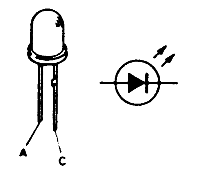
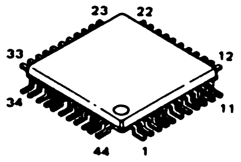
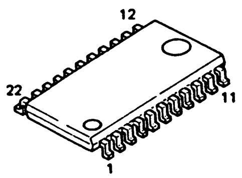
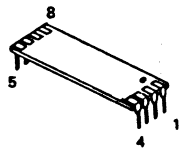
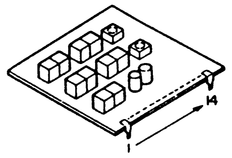
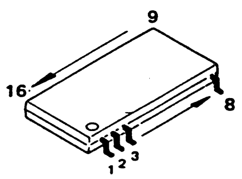
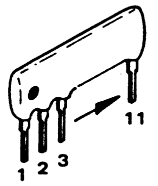
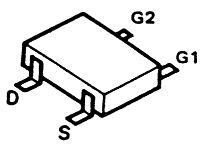
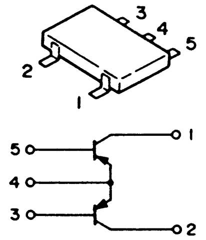
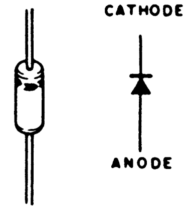
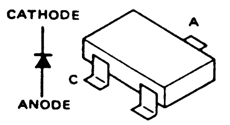
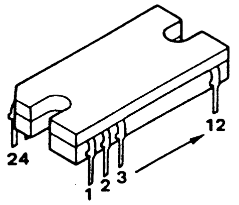
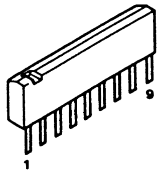
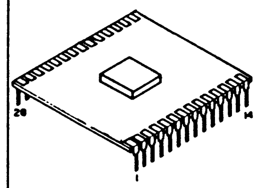
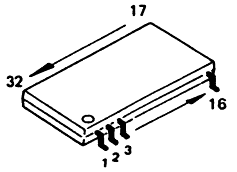
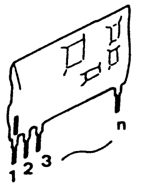
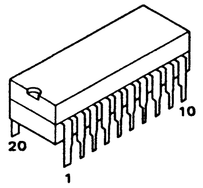
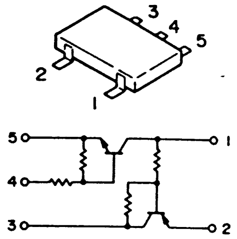
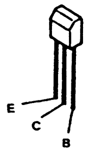
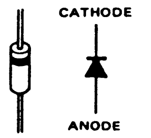
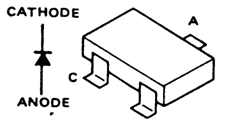
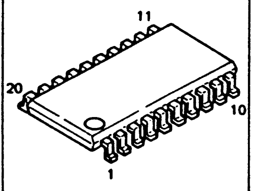
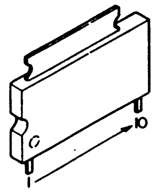
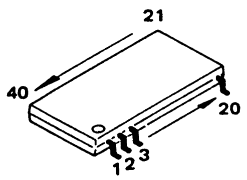
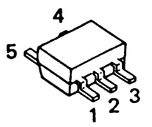
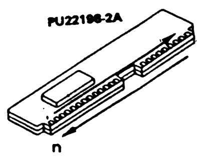
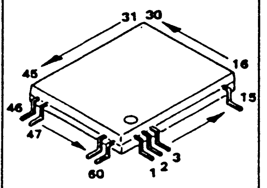
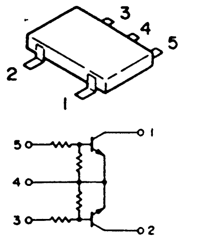
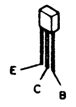
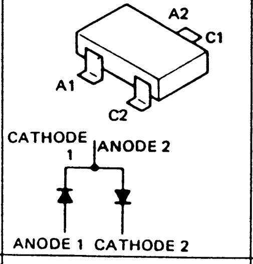
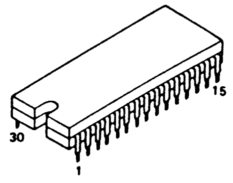
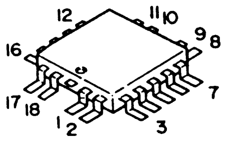
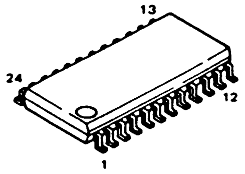
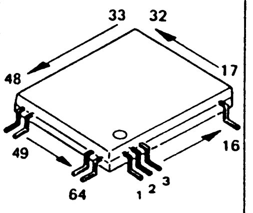
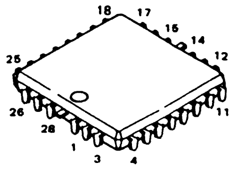
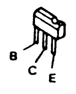
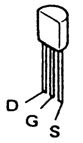
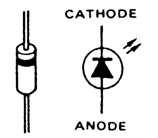
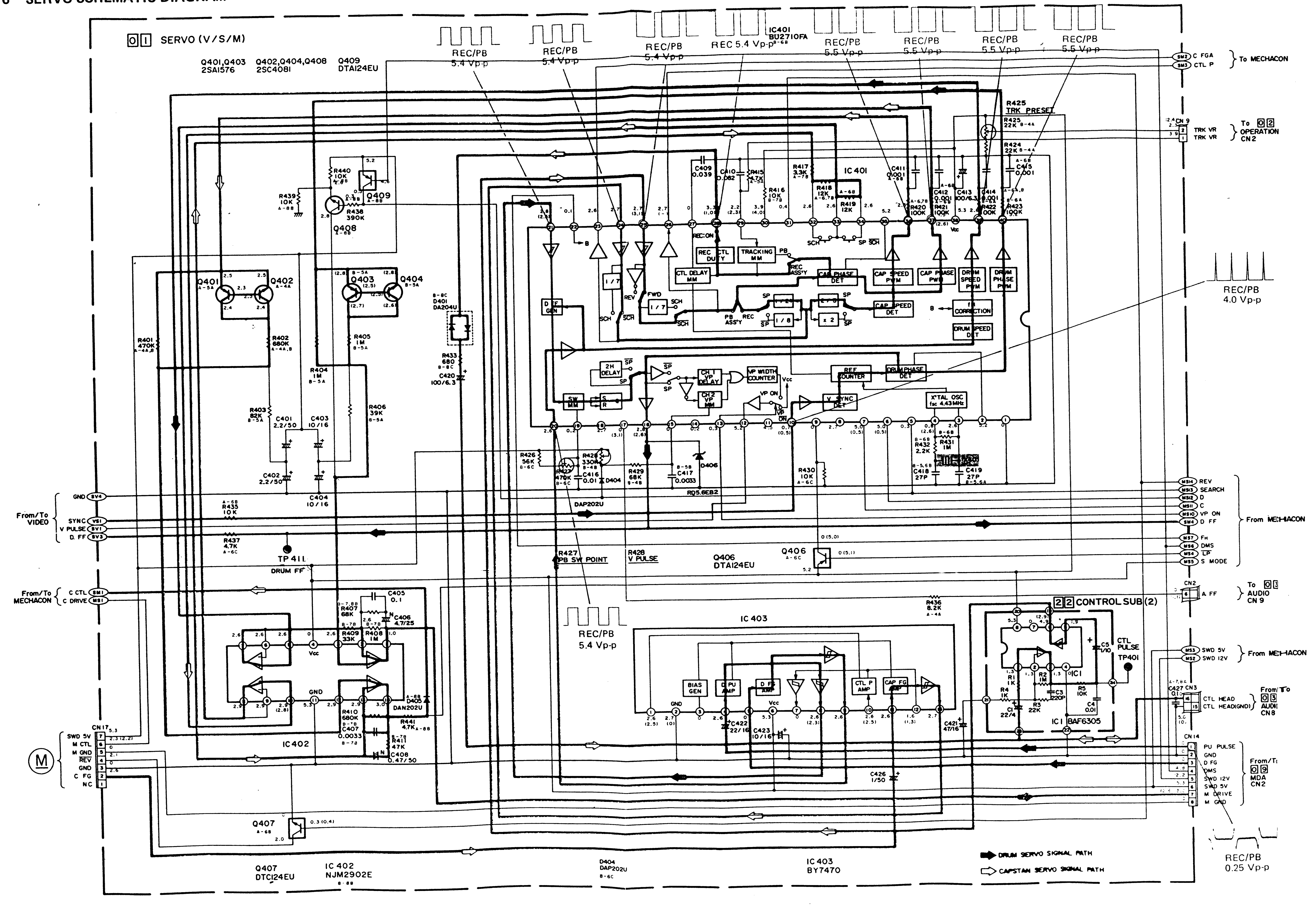
1				 11 10 7 18 12 5 6 4 3 1 2					 C A A CATHODE ANODE	 CATHODE A ANODE C
2				 25 24 38 15 39 48 1 2 3 14				 3 4 5 2 1 5 4 3 1 2	 A C C ANODE CATHODE	
3									 CATHODE A C ANODE	
4	 23 22 33 12 34 11 44 1							 3 4 5 2 1 5 4 3 1 2	 CATHODE ANODE	 CATHODE A C ANODE
5							 3 4 5 2 1 5 4 3 1 2		 CATHODE ANODE	 CATHODE A C ANODE
6					 PU22196-2A n	 31 30 45 16 46 15 47 60 1 2 3	 3 4 5 2 1 5 4 3 1 2		 A2 C1 A1 C2 CATHODE 1 ANODE 2 ANODE 1 CATHODE 2	
7		 12 11 10 9 8 16 7 17 18 1 2 3		 33 32 48 17 49 16 64 1 2 3	 18 17 16 15 14 12 11 25 26 28 1 3 4				 CATHODE ANODE	

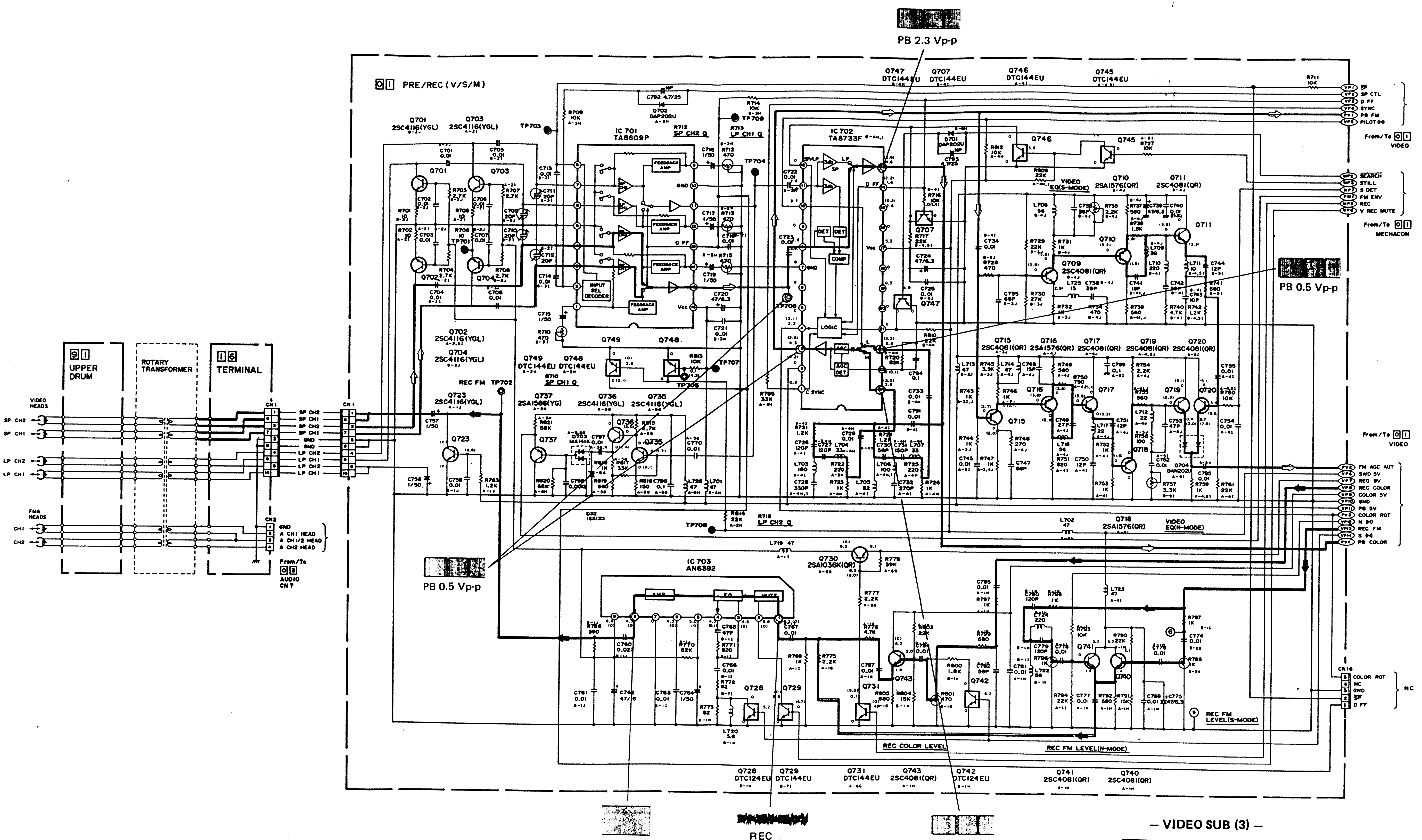
5-5

5.6 SERVO SCHEMATIC DIAGRAM

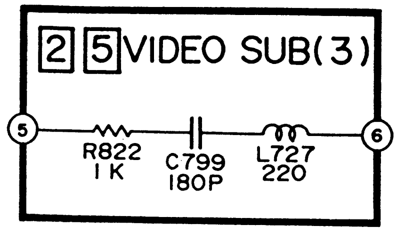


01 SERVO (V/S/M)
Q401,Q403 2SA1576
Q402,Q404,Q408 2SC4081
Q409 DTA124EU
REC/PB 5.4 Vp-p
REC/PB 5.4 Vp-p
REC/PB 5.4 Vp-p
REC 5.4 Vp-p
IC401 BU2710FA
REC/PB 5.5 Vp-p
REC/PB 5.5 Vp-p
REC/PB 5.5 Vp-p
REC/PB 5.5 Vp-p
C FGA
CTL P
To MECHACON
R425 TRK PRESET
R425 22K
R424 22K
TRK VR
TRK VR
To 02 OPERATION CN2
IC 401
REC/PB 4.0 Vp-p
R440 10K
R439 10K
R438 390K
Q409
Q408
Q401
Q402
Q403
Q404
D401 DA204U
R433 680
C420 100/6.3
R401 470K
R402 680K
R404 1M
R405 1M
R403 82K
R406 39K
C401 2.2/50
C403 10/16
C402 2.2/50
C404 10/16
C409 0.039
C410 0.082
R415 4.7K
R416 10K
R417 3.3K
R418 12K
R419 12K
C411 0.001
C412 0.001
C413 100/6.3
C414 0.001
C415 0.001
R420 100K
R421 100K
R422 100K
R423 100K
REC ON
REC CTL DUTY
TRACKING MM
CTL DELAY MM
CAP PHASE DET
CAP SPEED PWM
CAP PHASE PWM
DRUM SPEED PWM
DRUM PHASE PWM
CAP SPEED DET
fH CORRECTION
DRUM SPEED DET
D FF GEN
1/7
1/7
FWD
REV
SCH
PB ASS'Y
REC ASS'Y
SP
1/8
x2
2H DELAY
CH1 VP DELAY
CH2 VP MM
VP WIDTH COUNTER
VP ON
REF COUNTER
DRUM PHASE DET
V SYNC DET
X'TAL OSC fsc 4.43MHz
SW MM
R432 2.2K
R431 1M
C418 27P
C419 27P
R426 56K
R427 470K
R428 330K
C416 0.01
D404
R429 68K
C417 0.0033
D406
RD5.6EB2
R430 10K
DAP202U
GND
SYNC
V PULSE
D. FF
From/To VIDEO
R435 10K
R437 4.7K
TP411
DRUM FF
REV
SEARCH
D
C
VP ON
D FF
FH
DMS
LP
S MODE
From MECHACON
R427 PB SW POINT
R428 V PULSE
Q406 DTA124EU
Q406
To 03 AUDIO CN9
A FF
CN2
From/To MECHACON
C CTL
C DRIVE
C405 0.1
R407 68K
C406 4.7/25
R409 33K
R408 1M
R410 680K
C407 0.0033
D405 DAN202U
R441 47K
R411 47K
C408 0.47/50
IC402
REC/PB 5.4 Vp-p
IC 403
22 CONTROL SUB(2)
BIAS GEN
D PU AMP
D FG AMP
CTL P AMP
CAP FG AMP
C422 22/16
C423 10/16
C421 47/16
C426 1/50
CTL PULSE
TP401
C5 1/10
R1 1K
R2 1M
R4 1K
C1 22/4
C3 220P
R3 22K
R5 10K
C4 0.01
IC1 BAF6305
SWD 5V
SWD 12V
From MECHACON
C427 0.1
CN3
CTL HEAD
CTL HEAD(GND)
From To 03 AUDIO CN8
CN14
PU PULSE
GND
D FG
DMS
SWD 12V
SWD 5V
M DRIVE
M GND
From/To 09 MDA CN2
CN17
SWD 5V
M CTL
M GND
REV
GND
C FG
NC
M
Q407
Q407 DTC124EU
IC 402 NJM2902E
D404 DAP202U
IC 403 BY7470
DRUM SERVO SIGNAL PATH
CAPSTAN SERVO SIGNAL PATH
REC/PB 0.25 Vp-p

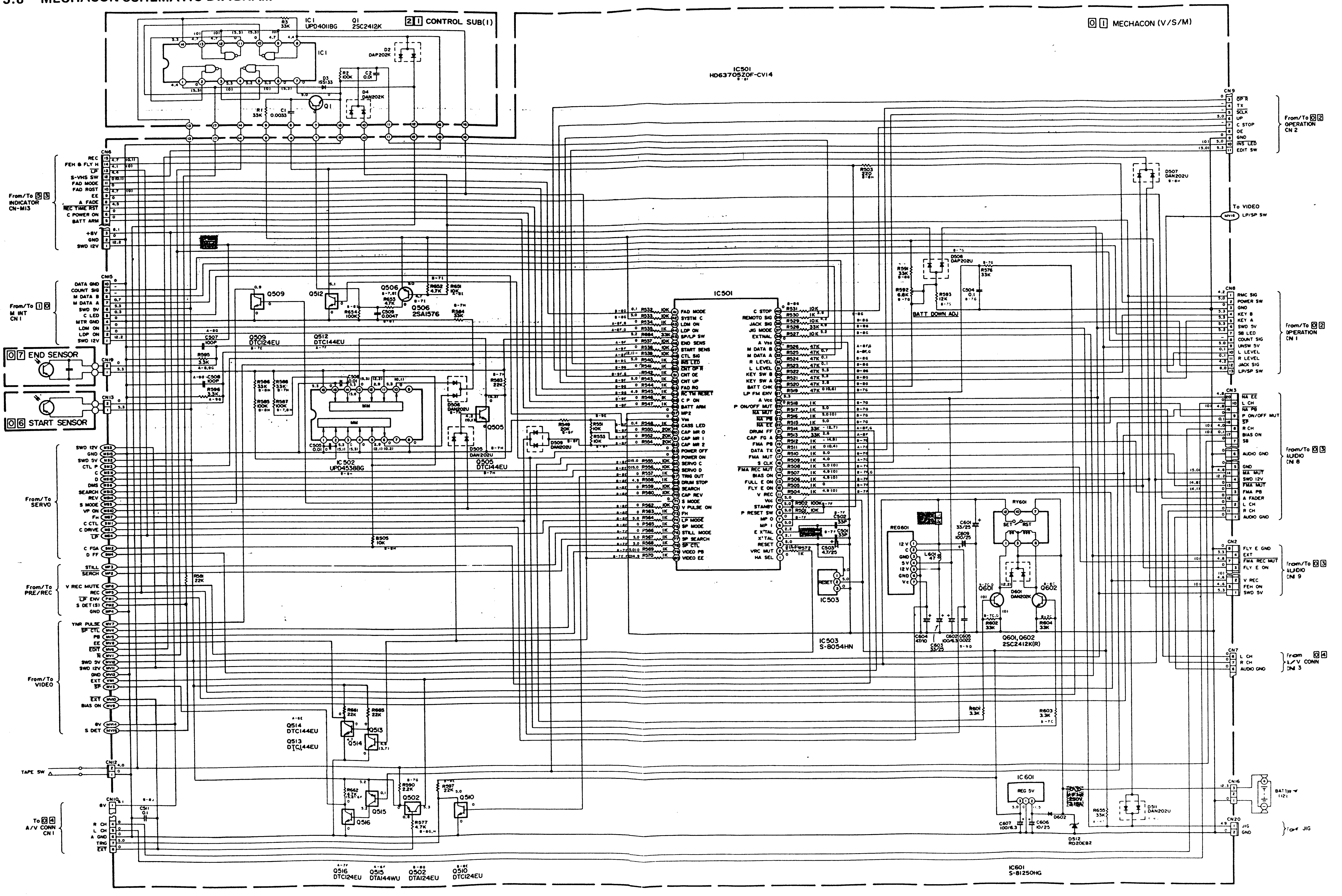
5.7 PRE/REC SCHEMATIC DIAGRAM


PB 2.3 Vp-p
PB 0.5 Vp-p
PB 0.5 Vp-p
REC 4.4 Vp-p
REC
40 mVp-p
PB 0.5 Vp-p
0 1 PRE/REC (V/S/M)
9 1 UPPER DRUM
ROTARY TRANSFORMER
1 6 TERMINAL
VIDEO HEADS
SP CH2
SP CH1
LP CH2
LP CH1
FMA HEADS
CH1
CH2
IC 701 TA8609P
IC 702 TA8733F
IC 703 AN6392
Q701 2SC4116(YGL)
Q703 2SC4116(YGL)
Q702 2SC4116(YGL)
Q704 2SC4116(YGL)
Q723 2SC4116(YGL)
Q749 DTC144EU
Q748 DTC144EU
Q737 2SA1586(YG)
Q736 2SC4116(YGL)
Q735 2SC4116(YGL)
Q747 DTC144EU
Q707 DTC144EU
Q746 DTC144EU
Q745 DTC144EU
Q710 2SA1576(QR)
Q711 2SC4081(QR)
Q709 2SC4081(QR)
Q715 2SC4081(QR)
Q716 2SA1576(QR)
Q717 2SC4081(QR)
Q719 2SC4081(QR)
Q720 2SC4081(QR)
Q718 2SA1576(QR)
Q730 2SA1036K(QR)
Q728 DTC124EU
Q729 DTC144EU
Q731 DTC144EU
Q743 2SC4081(QR)
Q742 DTC124EU
Q741 2SC4081(QR)
Q740 2SC4081(QR)
VIDEO EQ(S-MODE)
VIDEO EQ(N-MODE)
REC COLOR LEVEL
REC FM LEVEL(N-MODE)
REC FM LEVEL(S-MODE)
From/To 0 1 VIDEO
From/To 0 1 MECHACON
From/To 0 1 VIDEO
From/To 0 3 AUDIO CN7
SP
SP CTL
D FF
SYNC
PB FM
PILOT (H)
SEARCH
STILL
S DET
FM ENV
REC
V REC MUTE
FM AGC AUT
SWD 5V
REG 9V
REC COLOR
COLOR 5V
GND
PB 5V
COLOR ROT
N (H)
REC FM
S (H)
PB COLOR
COLOR ROT
NC
GND
SP
D FF
NC
GND
A CH1 HEAD
A CH1/2 HEAD
A CH2 HEAD

– VIDEO SUB (3) –

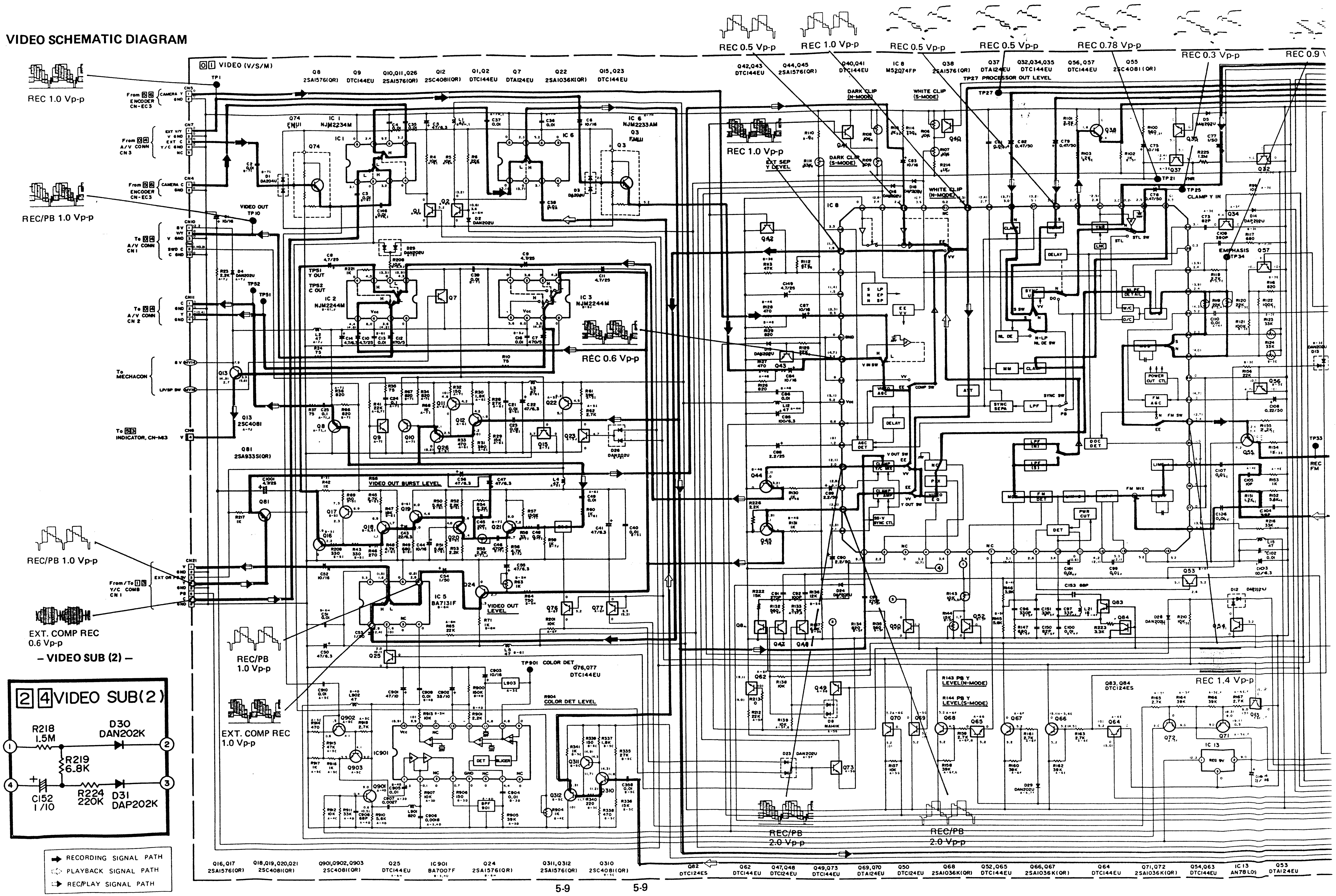

2 5 VIDEO SUB(3)
5
6
R822
1K
C799
180P
L727
220

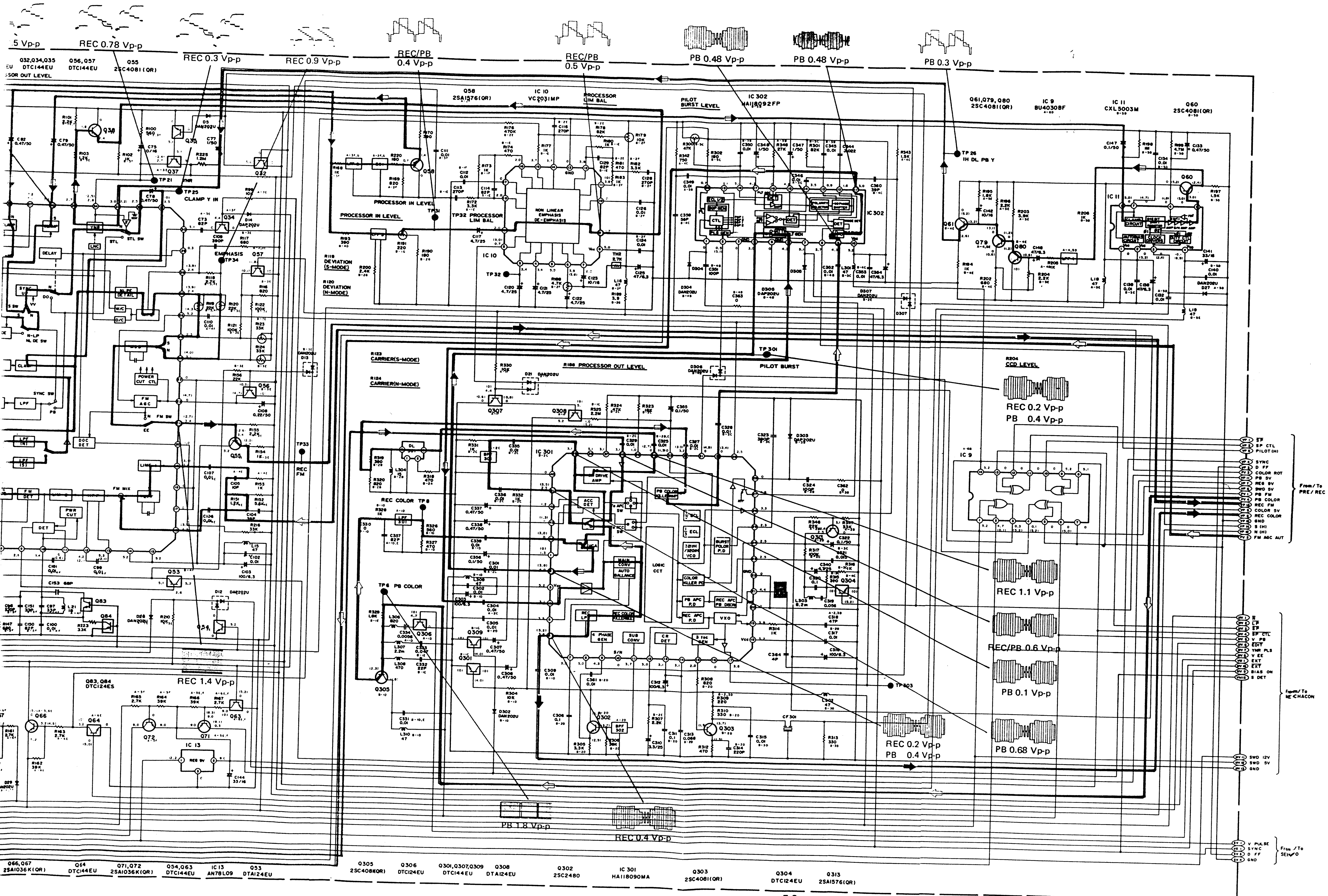
5.8 MECHACON SCHEMATIC DIAGRAM



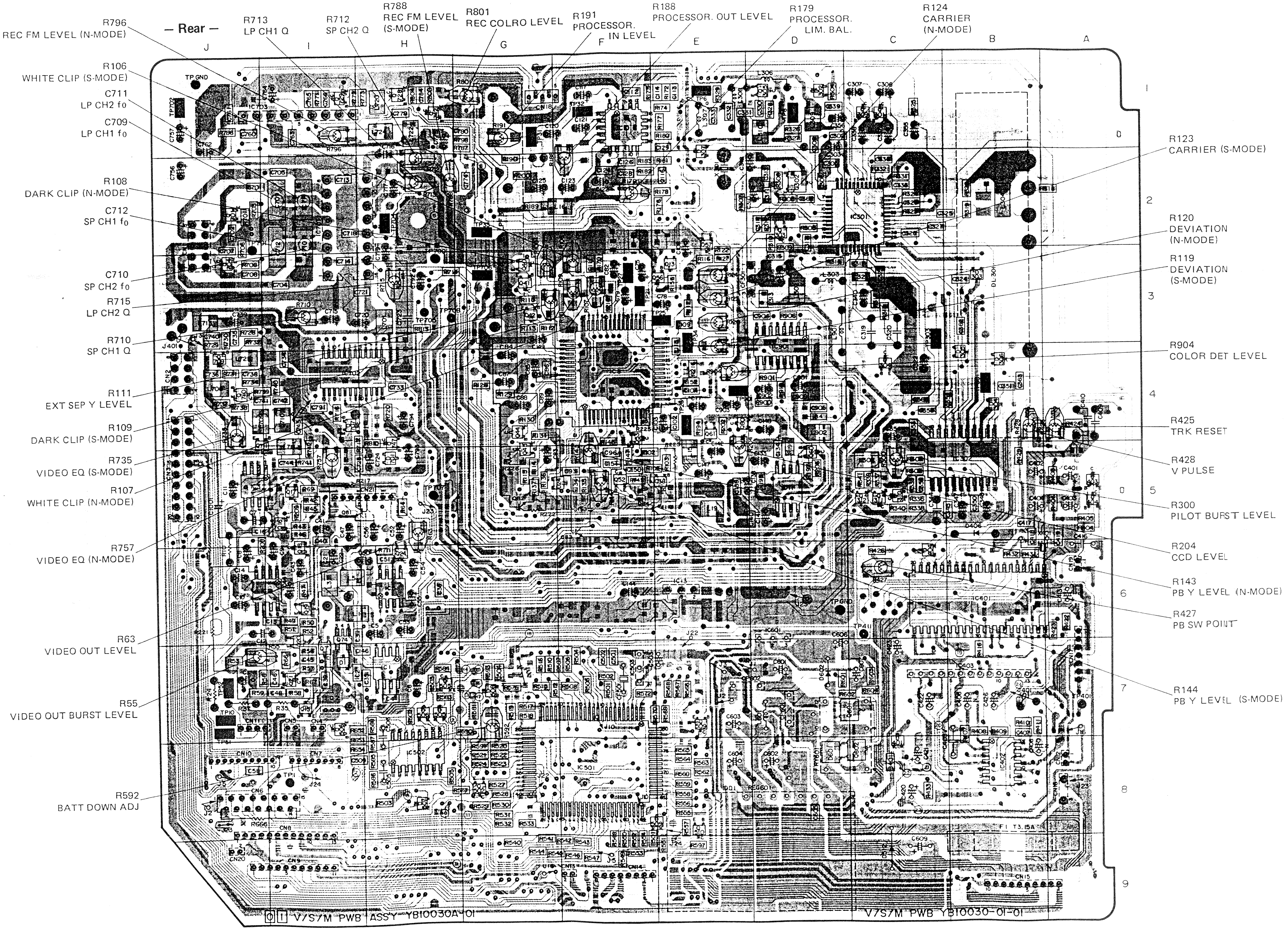
21 CONTROL SUB(1)
IC1 UPD4011BG
Q1 2SC2412K
D2 DAP202K
D3 1SS133
D4 DAN202K
01 MECHACON (V/S/M)
IC501 HD63705Z0F-CV14
From/To 53 INDICATOR CN-M13
From/To 10 M INT CN1
07 END SENSOR
06 START SENSOR
From/To SERVO
From/To PRE/REC
From/To VIDEO
TAPE SW
To 04 A/V CONN CN1
From/To 02 OPERATION CN2
To VIDEO LP/SP SW
From/To 02 OPERATION CN1
From/To 03 AUDIO CN8
From/To 03 AUDIO CN9
From 04 L/V CONN CN3
BATTERY 12V
For JIG
Q509 DTC124EU
Q512 DTC144EU
Q506 2SA1576
IC502 UPD4538BG
D506 DAN202U
Q505 DTC144EU
D505 DAN202U
D509 DAN202U
D508 DAP202U
BATT DOWN ADJ
D507 DAN202U
REG601
RY601
Q601, Q602 2SC2412K(R)
D601 DAN202K
IC503 S-8054HN
IC601 S-81250HG
D511 DAN202U
D512 RD20EB2
D602
Q514 DTC144EU
Q513 DTC144EU
Q516 DTC124EU
Q515 DTA144WU
Q502 DTA124EU
Q510 DTC124EU

5.9 VIDEO SCHEMATIC DIAGRAM

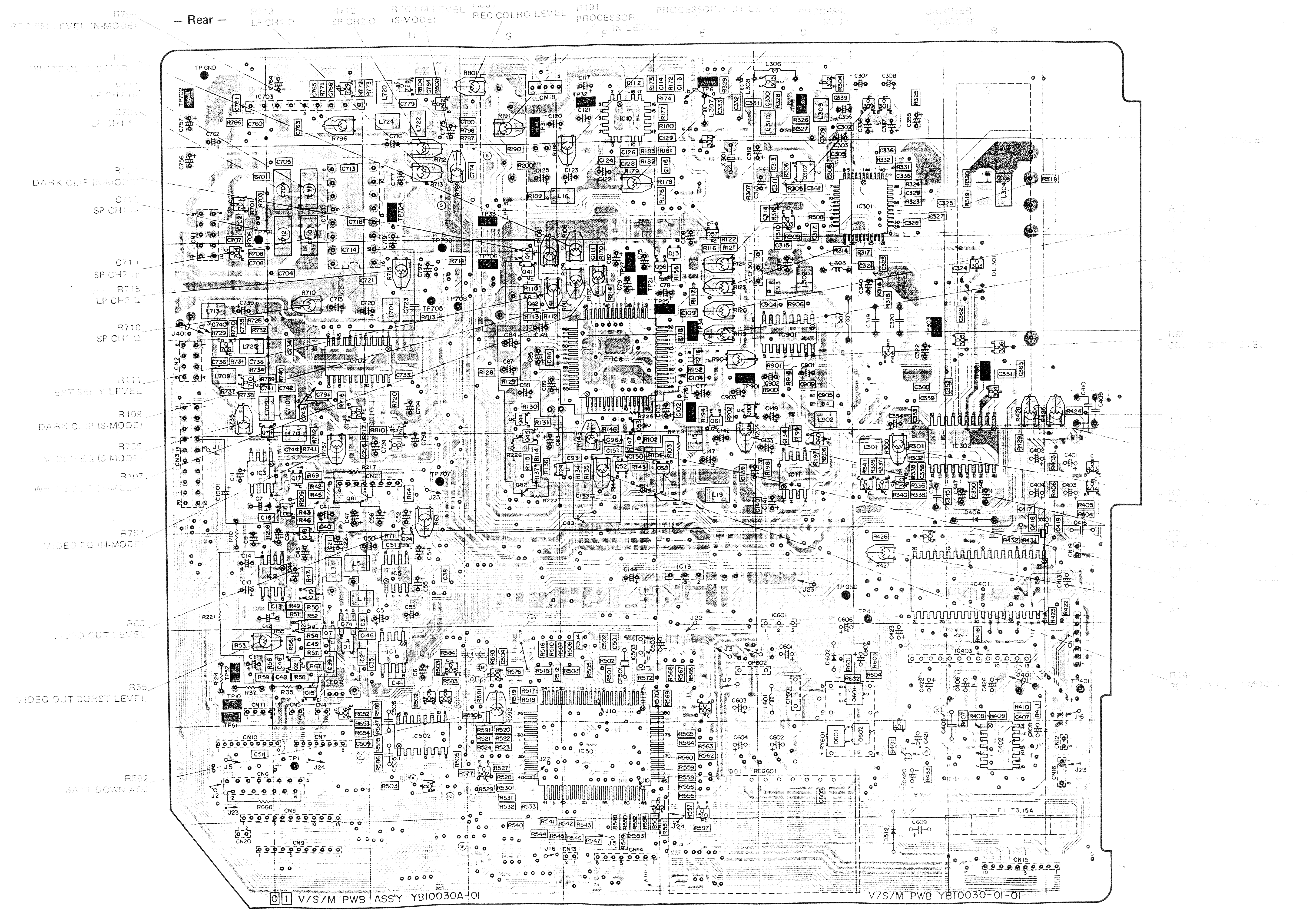

REC 1.0 Vp-p
REC/PB 1.0 Vp-p
REC/PB 1.0 Vp-p
EXT. COMP REC 0.6 Vp-p
– VIDEO SUB (2) –
2 4 VIDEO SUB(2)
R218 1.5M
D30 DAN202K
R219 6.8K
C152 1/10
R224 220K
D31 DAP202K
RECORDING SIGNAL PATH
PLAYBACK SIGNAL PATH
REC/PLAY SIGNAL PATH
01 VIDEO (V/S/M)
TP1
From 06 ENCODER CN-EC3
From 04 A/V CONN CN 3
To 04 A/V CONN CN 1
To 04 A/V CONN CN 2
To MECHACON
To 53 INDICATOR, CN-MI3
From/To 13 Y/C COMB CN 1
Q8 2SA1576(QR)
Q9 DTC144EU
Q10,Q11,Q26 2SA1576(QR)
Q12 2SC4081(QR)
Q1,Q2 DTC144EU
Q7 DTA124EU
Q22 2SA1036K(QR)
Q15,Q23 DTC144EU
IC 1 NJM2234M
IC 6 NJM2233AM
IC 2 NJM2244M
IC 3 NJM2244M
IC 5 BA7131F
IC901
VIDEO OUT TP10
TPS1 Y OUT
TPS2 C OUT
VIDEO OUT BURST LEVEL
VIDEO OUT LEVEL
REC 0.6 Vp-p
Q13 2SC4081
Q81 2SA933S(QR)
TP901 COLOR DET
Q76,Q77 DTC144EU
R904 COLOR DET LEVEL
REC/PB 1.0 Vp-p
EXT. COMP REC 1.0 Vp-p
REC 0.5 Vp-p
REC 1.0 Vp-p
REC 0.5 Vp-p
REC 0.5 Vp-p
REC 0.78 Vp-p
REC 0.3 Vp-p
REC 0.9
Q42,Q43 DTC144EU
Q44,Q45 2SA1576(QR)
Q40,Q41 DTC144EU
IC 8 M52074FP
Q38 2SA1576(QR)
Q37 DTA124EU
Q32,Q34,Q35 DTC144EU
Q56,Q57 DTC144EU
Q55 2SC4081(QR)
TP27 PROCESSOR OUT LEVEL
DARK CLIP (N-MODE)
WHITE CLIP (S-MODE)
DARK CLIP (S-MODE)
WHITE CLIP (N-MODE)
EXT SEP Y LEVEL
REC 1.0 Vp-p
TP21
TP25 CLAMP Y IN
EMPHASIS TP34
TP33
REC FM
REC 1.4 Vp-p
R143 PB Y LEVEL(N-MODE)
R144 PB Y LEVEL(S-MODE)
Q83,Q84 DTC124ES
IC 13
REG 9V
REC/PB 2.0 Vp-p
REC/PB 2.0 Vp-p
Q16,Q17 2SA1576(QR)
Q18,Q19,Q20,Q21 2SC4081(QR)
Q901,Q902,Q903 2SC4081(QR)
Q25 DTC144EU
IC901 BA7007F
Q24 2SA1576(QR)
Q311,Q312 2SA1576(QR)
Q310 2SC4081(QR)
Q82 DTC124ES
Q62 DTC144EU
Q47,Q48 DTC124EU
Q49,Q73 DTC144EU
Q69,Q70 DTA124EU
Q50 DTC124EU
Q68 2SA1036K(QR)
Q52,Q65 DTC144EU
Q66,Q67 2SA1036K(QR)
Q64 DTC144EU
Q71,Q72 2SA1036K(QR)
Q54,Q63 DTC144EU
IC13 AN78L09
Q53 DTA124EU


5 Vp-p
REC 0.78 Vp-p
REC 0.3 Vp-p
REC 0.9 Vp-p
REC/PB 0.4 Vp-p
REC/PB 0.5 Vp-p
PB 0.48 Vp-p
PB 0.48 Vp-p
PB 0.3 Vp-p
Q32,Q34,Q35 DTC144EU
Q56,Q57 DTC144EU
Q55 2SC4081(QR)
Q58 2SA1576(QR)
IC 10 VC2031MP
PROCESSOR LIM BAL
PILOT BURST LEVEL
IC 302 HA118092FP
Q61,Q79,Q80 2SC4081(QR)
IC 9 BU4030BF
IC 11 CXL5003M
Q60 2SC4081(QR)
TP 21
TP 25
CLAMP Y IN
EMPHASIS
TP34
PROCESSOR IN LEVEL
TP31
TP32 PROCESSOR LIM BAL
NON LINEAR EMPHASIS DE-EMPHASIS
R119 DEVIATION (S-MODE)
R120 DEVIATION (N-MODE)
TP32
TP 26 1H DL PB Y
R123 CARRIER(S-MODE)
R124 CARRIER(N-MODE)
R188 PROCESSOR OUT LEVEL
TP 301
PILOT BURST
R204 CCD LEVEL
REC 0.2 Vp-p
PB 0.4 Vp-p
IC 9
TP33
REC FM
REC COLOR TP 8
TP 6 PB COLOR
IC 301
REC 1.1 Vp-p
REC/PB 0.6 Vp-p
PB 0.1 Vp-p
REC 0.2 Vp-p
PB 0.4 Vp-p
PB 0.68 Vp-p
TP 303
REC 1.4 Vp-p
Q83, Q84 DTC124ES
IC 13
REG 9V
PB 1.8 Vp-p
REC 0.4 Vp-p
SF
SP CTL
PILOT(H)
SYNC
D FF
COLOR ROT
PB 5V
REC 9V
SWD 5V
PB FM
PB COLOR
REC FM
COLOR 5V
REC COLOR
GND
S (H)
N (H)
FM AGC AUT
From/To PRE/REC
From/To MECHACON
SWD 12V
SWD 5V
GND
V PULSE
SYNC
D FF
GND
From/To SERVO
Q66,Q67 2SA1036K(QR)
Q64 DTC144EU
Q71,Q72 2SA1036K(QR)
Q54,Q63 DTC144EU
IC 13 AN78L09
Q53 DTA124EU
Q305 2SC4081(QR)
Q306 DTC124EU
Q301,Q307,Q309 DTC144EU
Q308 DTA124EU
Q302 2SC2480
IC 301 HA118090MA
Q303 2SC4081(QR)
Q304 DTC124EU
Q313 2SA1576(QR)

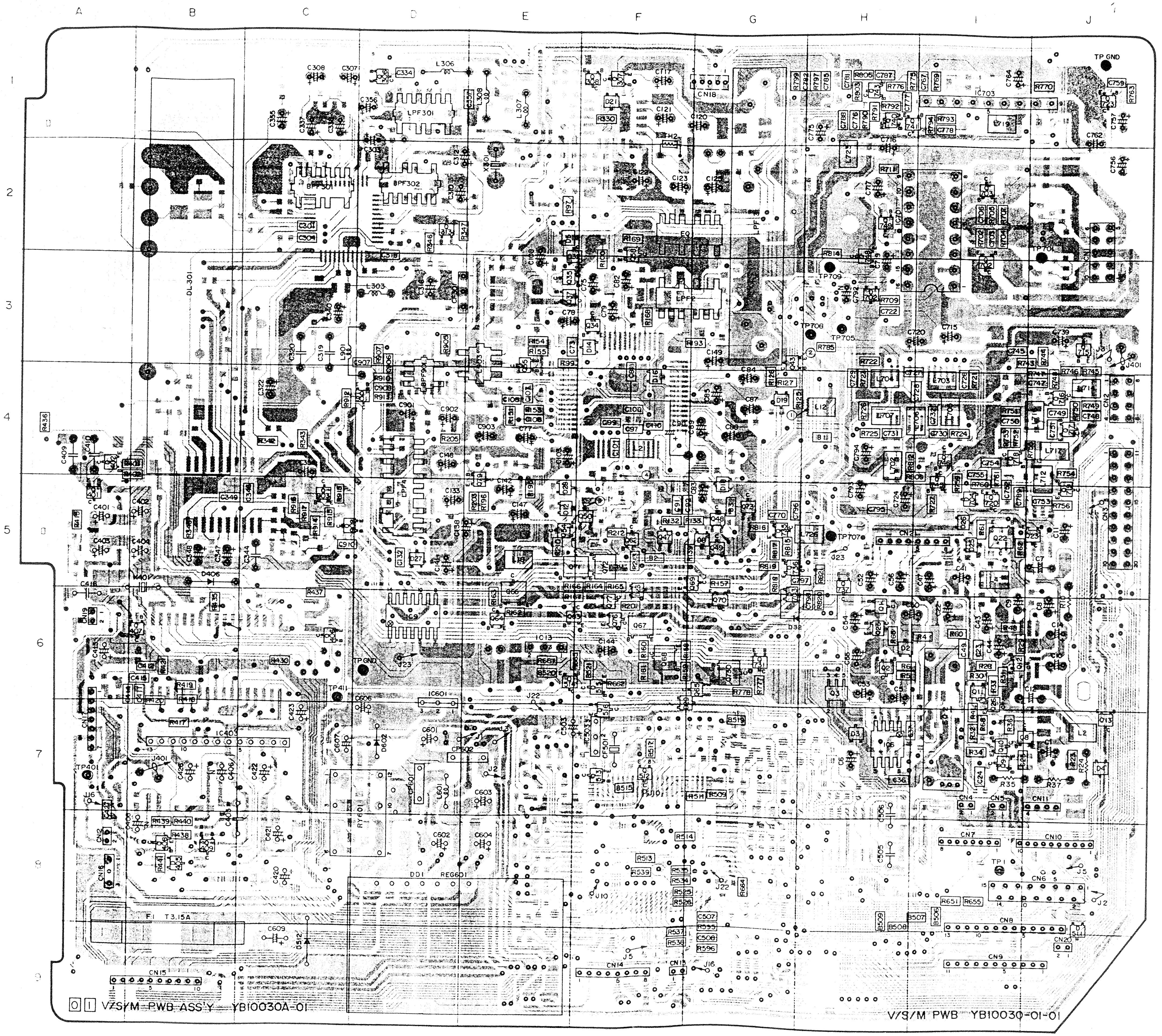
SUB(2) PWB ASS'Y
2
SUB(2) PWB



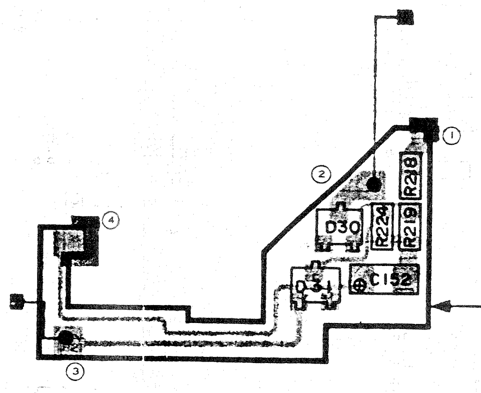
— Rear —
R796
REC FM LEVEL (N-MODE)
R713
LP CH1 Q
R712
SP CH2 Q
R788
REC FM LEVEL
(S-MODE)
R801
REC COLRO LEVEL
R191
PROCESSOR.
IN LEVEL
R188
PROCESSOR. OUT LEVEL
R179
PROCESSOR.
LIM. BAL.
R124
CARRIER
(N-MODE)
J
I
H
G
F
E
D
C
B
A
R106
WHITE CLIP (S-MODE)
C711
LP CH2 fo
C709
LP CH1 fo
R108
DARK CLIP (N-MODE)
C712
SP CH1 fo
C710
SP CH2 fo
R715
LP CH2 Q
R710
SP CH1 Q
R111
EXT SEP Y LEVEL
R109
DARK CLIP (S-MODE)
R735
VIDEO EQ (S-MODE)
R107
WHITE CLIP (N-MODE)
R757
VIDEO EQ (N-MODE)
R63
VIDEO OUT LEVEL
R55
VIDEO OUT BURST LEVEL
R592
BATT DOWN ADJ
R123
CARRIER (S-MODE)
R120
DEVIATION
(N-MODE)
R119
DEVIATION
(S-MODE)
R904
COLOR DET LEVEL
R425
TRK RESET
R428
V PULSE
R300
PILOT BURST LEVEL
R204
CCD LEVEL
R143
PB Y LEVEL (N-MODE)
R427
PB SW POINT
R144
PB Y LEVEL (S-MODE)
1
2
3
4
5
6
7
8
9
V/S/M PWB ASS'Y YB10030A-01
V/S/M PWB YB10030-01-01


— Rear —
R796
REC FM LEVEL (N-MODE)
R713
LP CH1 Q
R712
SP CH2 Q
REC FM LEVEL
(S-MODE)
R801
REC COLRO LEVEL
R191
PROCESSOR
IN LEVEL
PROCESSOR OUT LEVEL
H
G
F
E
D
C
B
WHITE CLIP (S-MODE)
LP CH2 f0
LP CH1 f0
DARK CLIP (N-MODE)
SP CH1 f0
C710
SP CH2 f0
R715
LP CH2 Q
R710
SP CH1 Q
R111
EXT SEP Y LEVEL
R109
DARK CLIP (S-MODE)
R735
VIDEO EQ (S-MODE)
R107
R757
VIDEO EQ (N-MODE)
R60
VIDEO OUT LEVEL
R55
VIDEO OUT BURST LEVEL
R592
BATT DOWN ADJ
TP GND
IC703
IC702
IC8
IC10
IC301
IC302
IC901
IC401
IC402
IC403
IC501
IC502
IC601
IC13
CN1
CN2
CN3
CN4
CN5
CN6
CN7
CN8
CN9
CN10
CN11
CN13
CN14
CN15
CN16
CN18
CN20
CN21
J401
DL301
F1 T3.15A
REG601
01 V/S/M PWB ASS'Y YB10030A-01
V/S/M PWB YB10030-01-01

—Front—

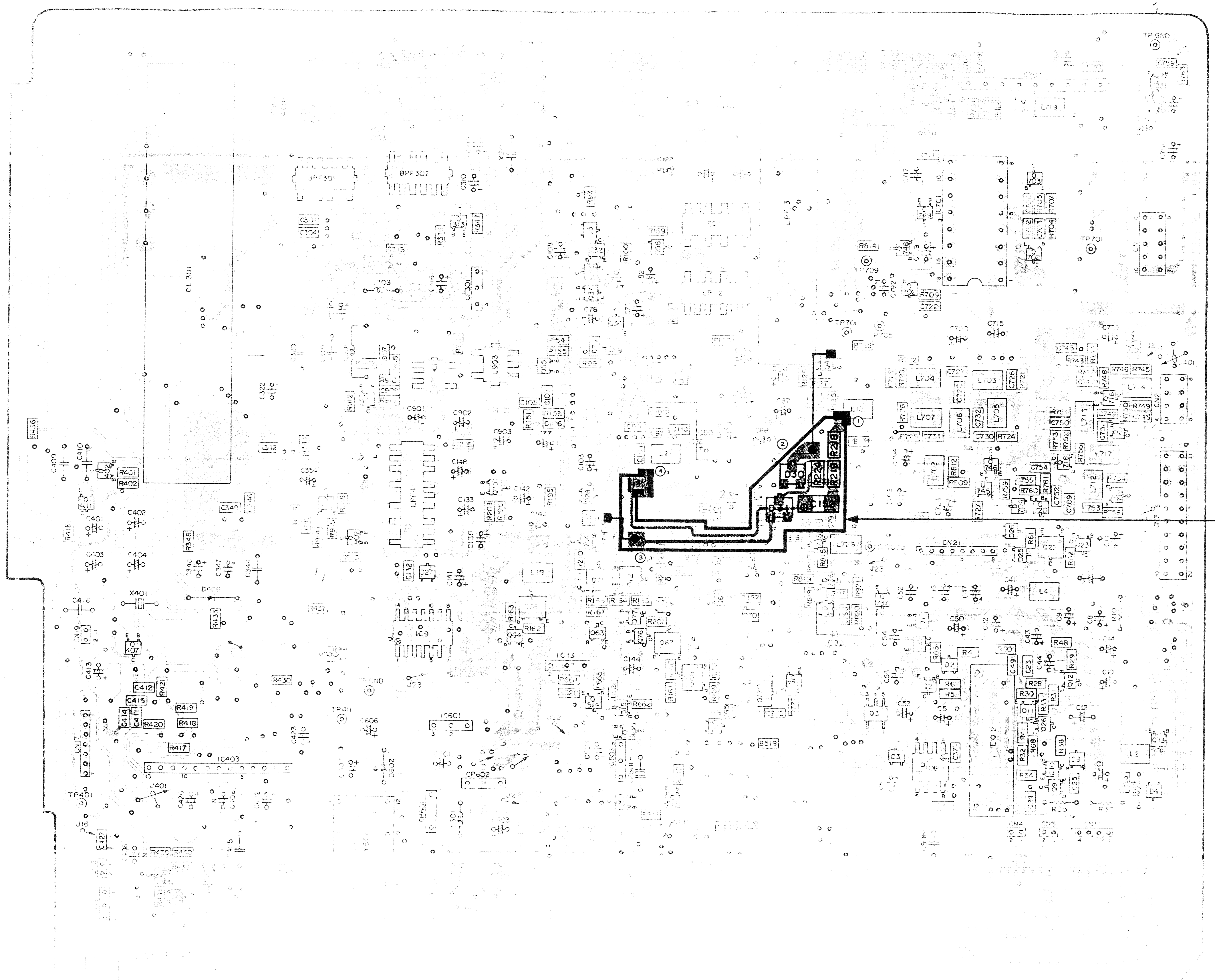

A
B
C
D
E
F
G
H
I
J
1
2
3
4
5
6
7
8
9
TP GND
DL301
BPF301
BPF302
LPF301
IC601
IC403
IC703
F1 T3.15A
CN15
CN14
CN7
CN10
CN8
CN9
DD1
REG601
01 V/S/M PWB ASS'Y YB10030A-01
V/S/M PWB YB10030-01-01

– Front – (SUB CIRCUIT BOARDS)


①
②
③
④
R218
R224
R219
D30
D31
C152

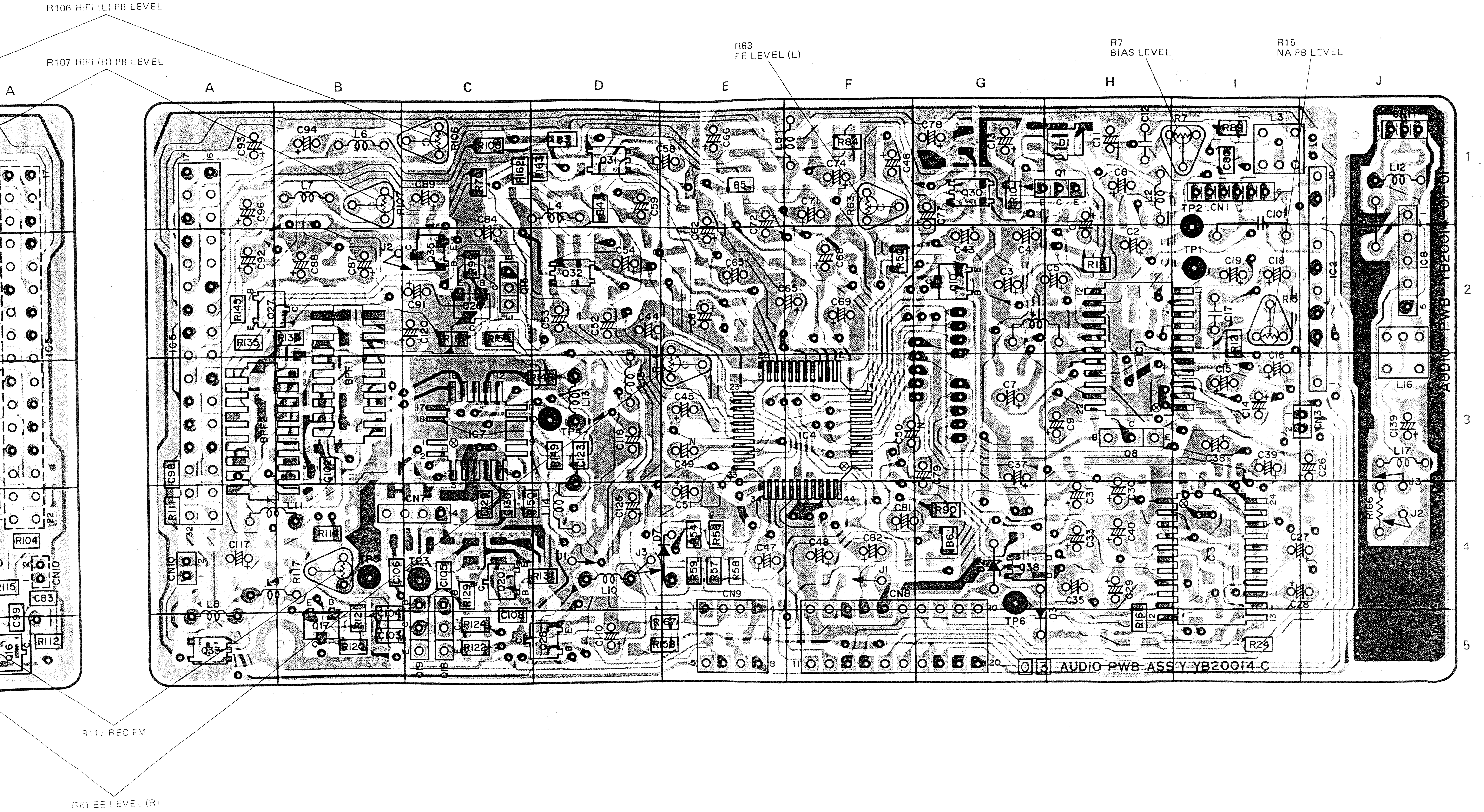
2 4
VIDEO SUB(2) PWB ASS'Y
YB20166A2
VIDEO SUB(2) PWB
YB20166

– Front – (SUB CIRCUIT BOARDS)


①
②
③
④
R218
R219
R216
TP701
TP GND
CN21
IC403
IC601
X401
TP401
BPF301
BPF302
LPF1
IC13

2 4
VIDEO SUB(2) PWB ASS'Y
YB20166A2
VIDEO SUB(2) PWB
YB20166

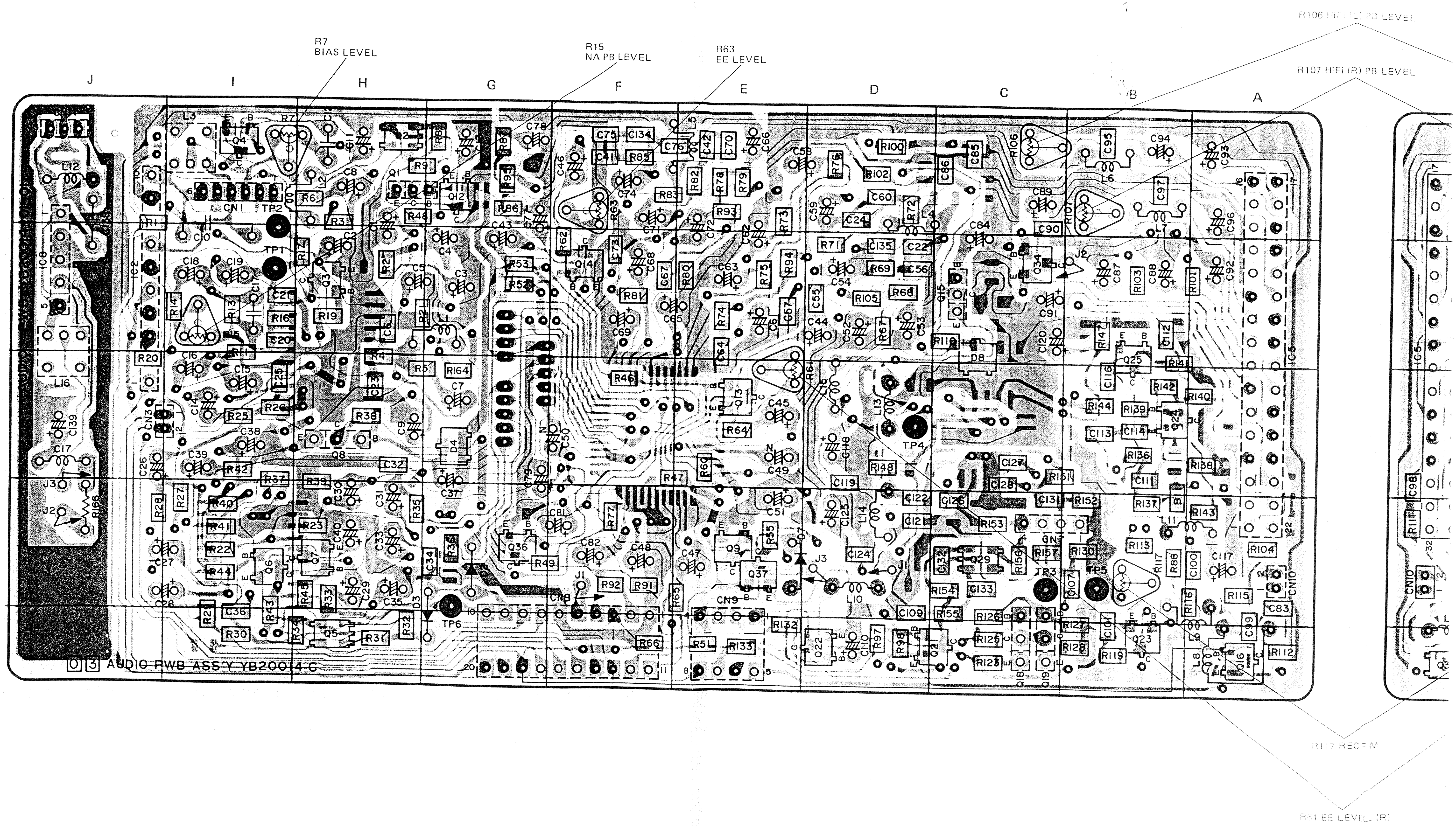
– Front –



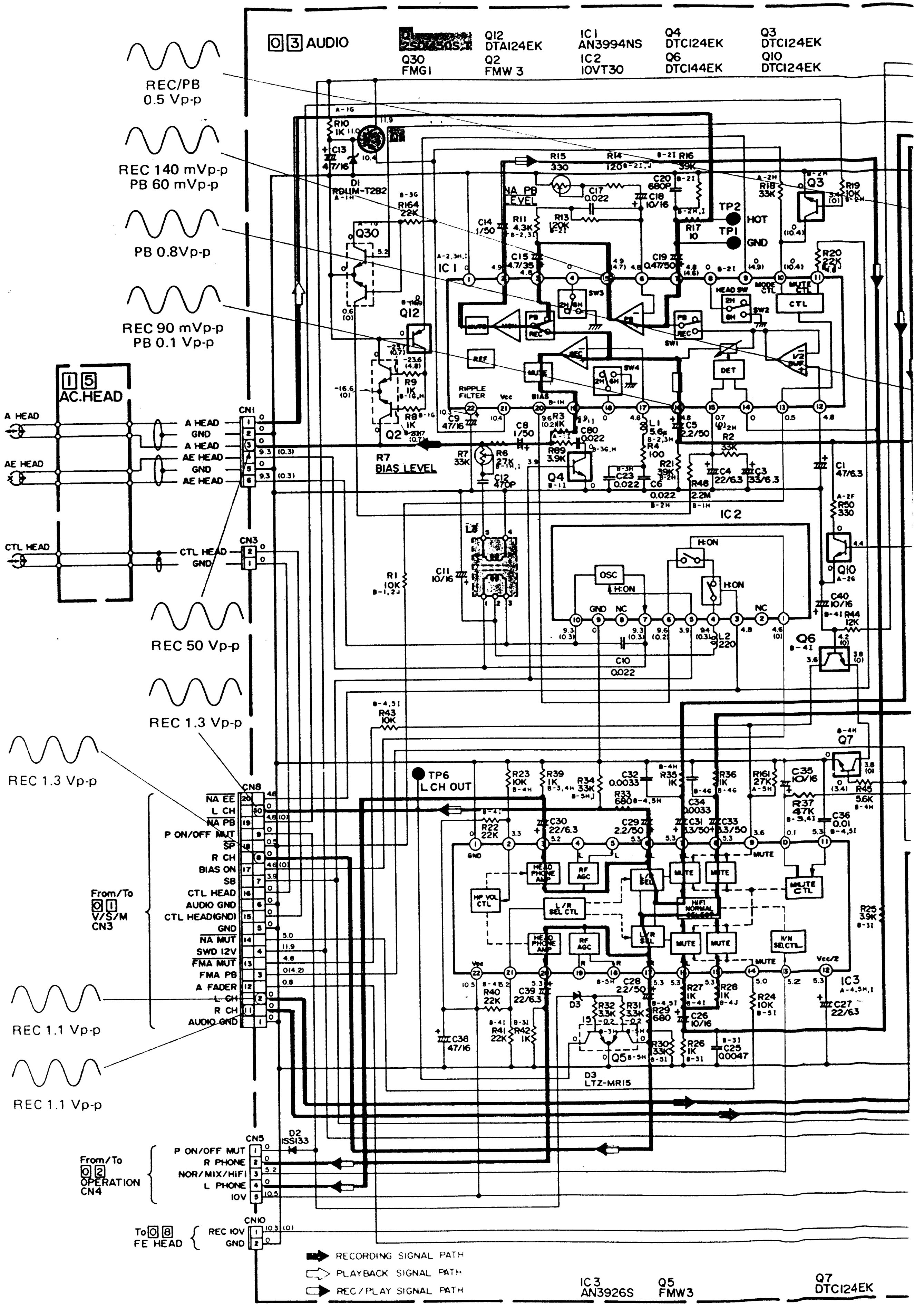
R106 HiFi (L) PB LEVEL
R107 HiFi (R) PB LEVEL
R63 EE LEVEL (L)
R7 BIAS LEVEL
R15 NA PB LEVEL
R117 REC FM
R61 EE LEVEL (R)
A
B
C
D
E
F
G
H
I
J
1
2
3
4
5
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
CN1
CN7
CN8
CN9
CN10
TP1
TP2
TP3
TP4
TP5
TP6
03 AUDIO PWB ASS'Y YB20014-C
AUDIO PWB YB20014-01 01

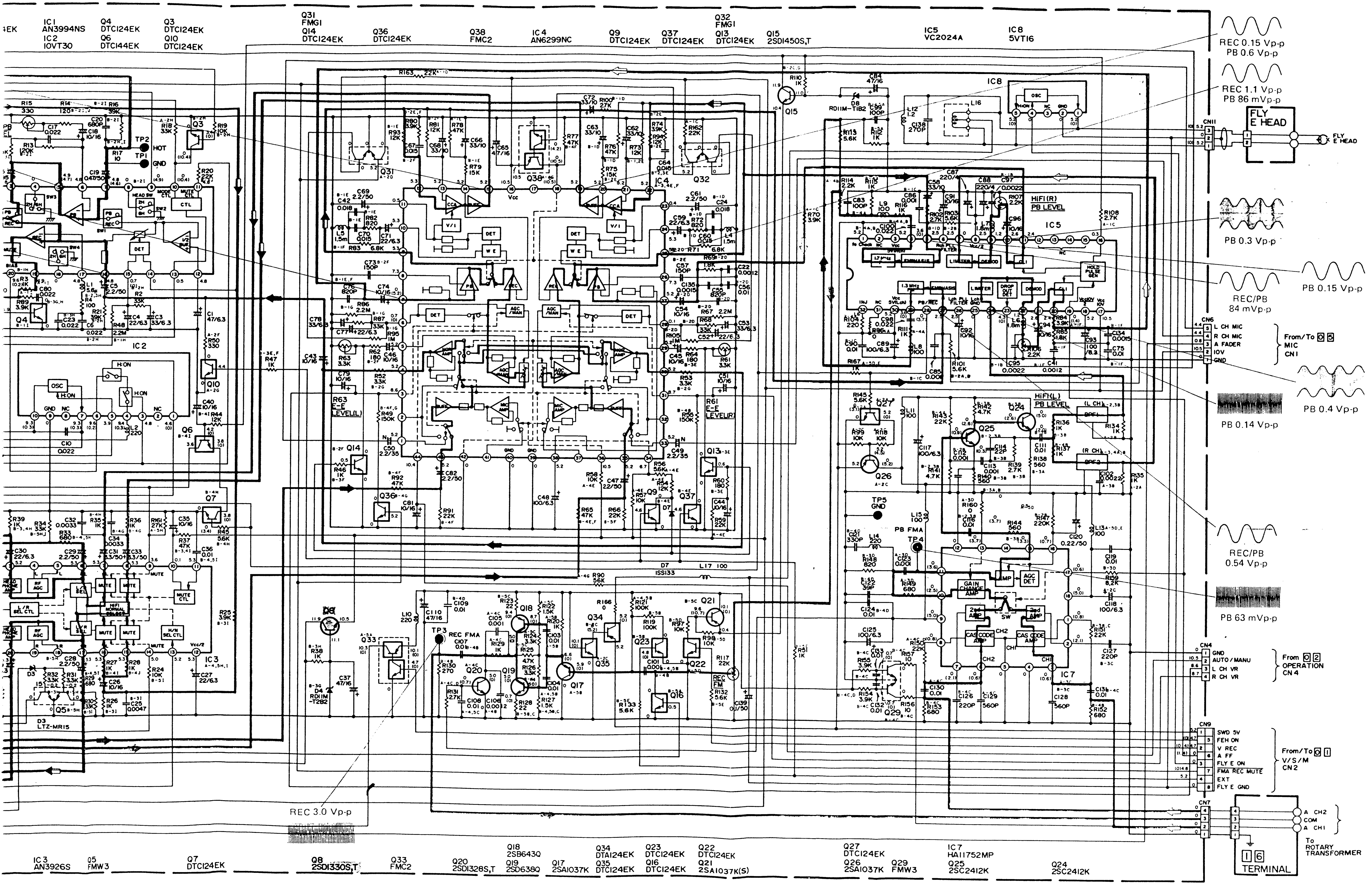
5.11 AUDIO CIRCUIT BOARD

— Rear —

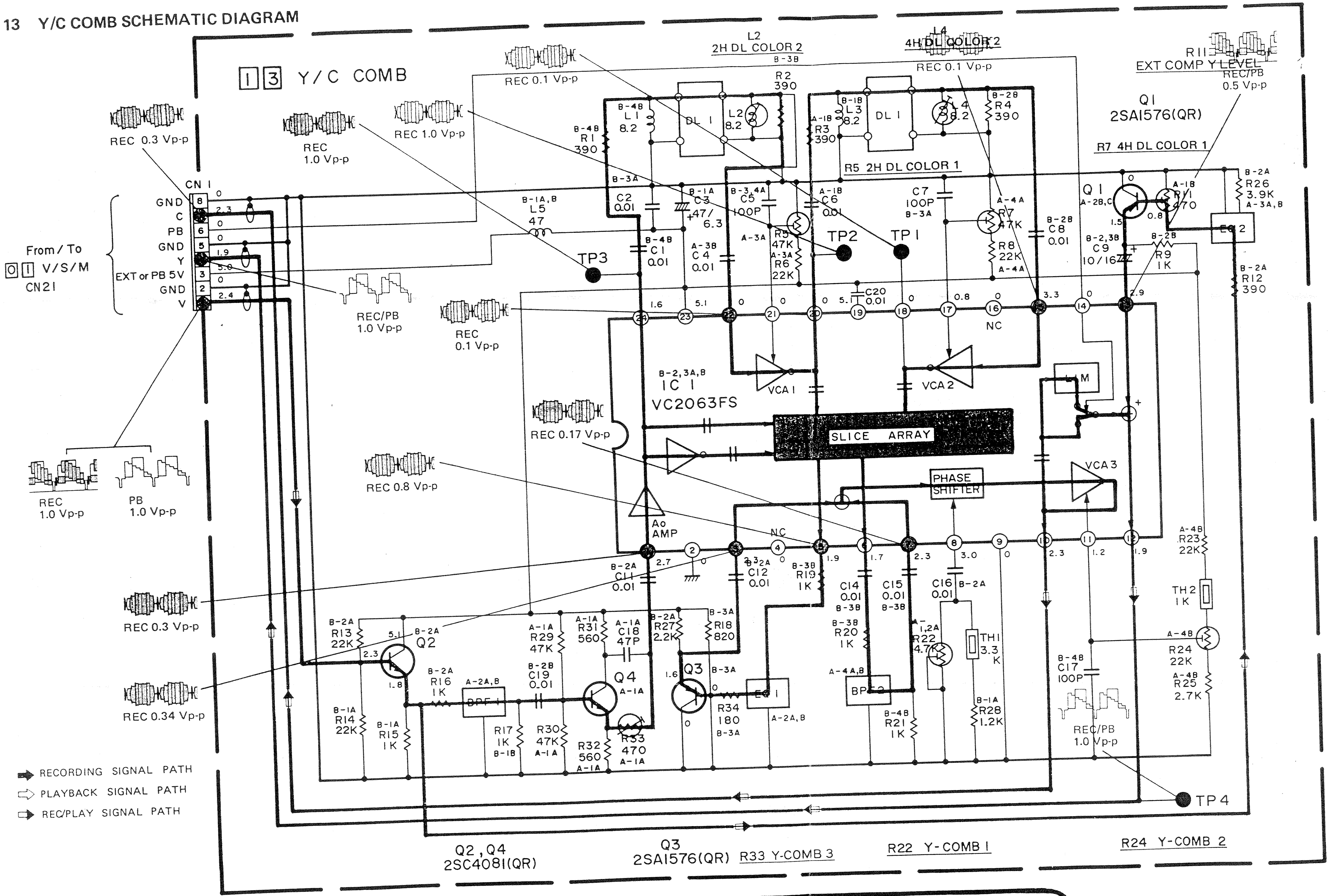

R106 HiFi (L) PB LEVEL
R107 HiFi (R) PB LEVEL
R7 BIAS LEVEL
R15 NA PB LEVEL
R63 EE LEVEL
J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
TP1
TP2
TP3
TP4
TP5
TP6
CN1
CN3
CN8
CN9
CN10
IC5
AUDIO PWB ASS'Y YB20014 C
R117 REC FM
R61 EE LEVEL (R)

5.12 AUDIO SCHEMATIC DIAGRAM

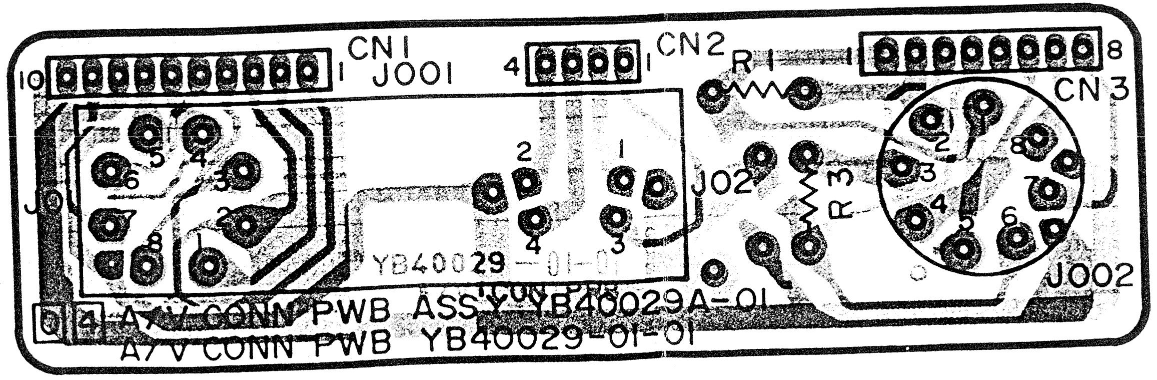

03 AUDIO
Q1 2SD1450S
Q12 DTA124EK
IC1 AN3994NS
Q4 DTC124EK
Q3 DTC124EK
Q30 FMG1
Q2 FMW 3
IC2 10VT30
Q6 DTC144EK
Q10 DTC124EK
REC/PB 0.5 Vp-p
REC 140 mVp-p PB 60 mVp-p
PB 0.8Vp-p
REC 90 mVp-p PB 0.1 Vp-p
15 AC.HEAD
A HEAD
AE HEAD
CTL HEAD
CN1
A HEAD
GND
A HEAD
AE HEAD
GND
AE HEAD
CN3
CTL HEAD
GND
R7 BIAS LEVEL
NA PB LEVEL
TP2 HOT
TP1 GND
D1 ROLIM-T282
RIPPLE FILTER
IC2
OSC
H:ON
REC 50 Vp-p
REC 1.3 Vp-p
REC 1.3 Vp-p
TP6 L CH OUT
CN8
NA EE
L CH
NA PB
P ON/OFF MUT
SP
R CH
BIAS ON
SB
CTL HEAD
AUDIO GND
CTL HEAD(GND)
GND
NA MUT
SWD 12V
FMA MUT
FMA PB
A FADER
L CH
R CH
AUDIO GND
From/To 01 V/S/M CN3
REC 1.1 Vp-p
REC 1.1 Vp-p
IC3
D3 LTZ-MR15
CN5
D2 ISS133
P ON/OFF MUT
R PHONE
NOR/MIX/HIFI
L PHONE
10V
From/To 02 OPERATION CN4
CN10
REC 10V
GND
To 08 FE HEAD
RECORDING SIGNAL PATH
PLAYBACK SIGNAL PATH
REC/PLAY SIGNAL PATH
IC3 AN3926S
Q5 FMW3
Q7 DTC124EK


IC1 AN3994NS
IC2 10VT30
Q4 DTC124EK
Q6 DTC144EK
Q3 DTC124EK
Q10 DTC124EK
Q31 FMG1
Q14 DTC124EK
Q36 DTC124EK
Q38 FMC2
IC4 AN6299NC
Q9 DTC124EK
Q37 DTC124EK
Q32 FMG1
Q13 DTC124EK
Q15 2SD1450S,T
IC5 VC2024A
IC8 5VT16
REC 0.15 Vp-p
PB 0.6 Vp-p
REC 1.1 Vp-p
PB 86 mVp-p
FLY E HEAD
CN11
PB 0.3 Vp-p
PB 0.15 Vp-p
REC/PB 84 mVp-p
CN6
L CH MIC
R CH MIC
A FADER
10V
GND
From/To 0 5 MIC CN1
PB 0.4 Vp-p
PB 0.14 Vp-p
HIFI(R) PB LEVEL
HIFI(L) PB LEVEL
R63 E-E LEVEL(L)
R61 E-E LEVEL(R)
TP1 GND
TP2 HOT
TP3 REC FMA
TP4 PB FMA
TP5 GND
REC FM
REC/PB 0.54 Vp-p
PB 63 mVp-p
CN4
GND
AUTO/MANU
L CH VR
R CH VR
From 0 2 OPERATION CN4
CN9
SWD 5V
FEH ON
V REC
A FF
FLY E ON
FMA REC MUTE
EXT
FLY E GND
From/To 0 1 V/S/M CN2
CN7
A CH2
COM
A CH1
To ROTARY TRANSFORMER
1 6 TERMINAL
REC 3.0 Vp-p
IC3 AN3926S
Q5 FMW3
Q7 DTC124EK
Q8 2SD1330S,T
Q33 FMC2
Q20 2SD1328S,T
Q18 2SB643Q
Q19 2SD638Q
Q17 2SA1037K
Q34 DTA124EK
Q35 DTC124EK
Q23 DTC124EK
Q16 DTC124EK
Q22 DTC124EK
Q21 2SA1037K(S)
Q27 DTC124EK
Q26 2SA1037K
Q29 FMW3
IC7 HA11752MP
Q25 2SC2412K
Q24 2SC2412K
D3 LTZ-MR15
D7 1SS133
D4 RD11M-T2B2
D8 RD11M-T1B2

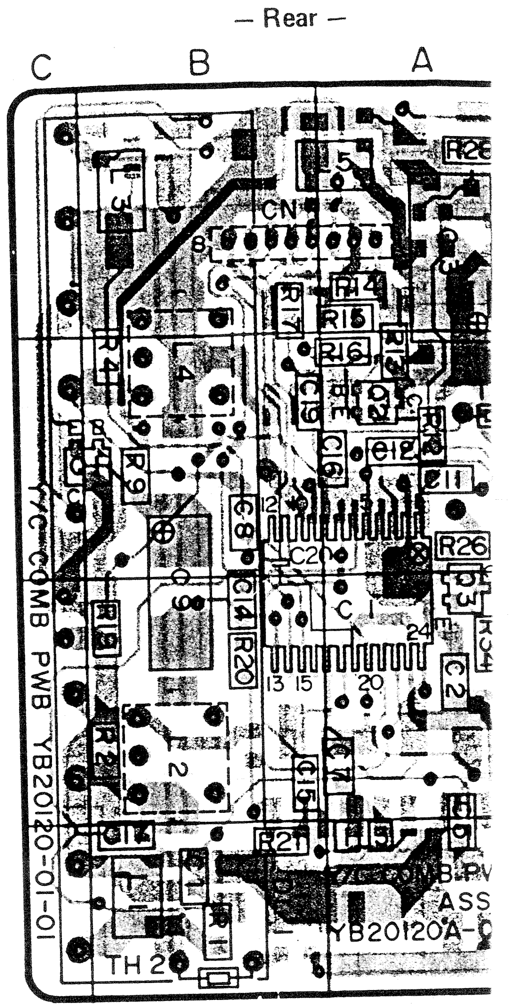
5.13 Y/C COMB SCHEMATIC DIAGRAM


13 Y/C COMB
From / To
01 V/S/M
CN21
CN 1
GND 8
C 7
PB 6
GND 5
Y 4
EXT or PB 5V 3
GND 2
V 1
REC 0.3 Vp-p
REC 1.0 Vp-p
REC 1.0 Vp-p
REC 0.1 Vp-p
L2 2H DL COLOR 2
L4 4H DL COLOR 2
REC 0.1 Vp-p
R11 EXT COMP Y LEVEL
REC/PB 0.5 Vp-p
Q1 2SA1576(QR)
R7 4H DL COLOR 1
R5 2H DL COLOR 1
L1 8.2
L2 8.2
L3 8.2
L4 8.2
DL 1
R1 390
R2 390
R3 390
R4 390
L5 47
C2 0.01
C3 47/6.3
C5 100P
C6 0.01
C7 100P
C8 0.01
C9 10/16
R5 47K
R6 22K
R7 47K
R8 22K
R9 1K
R11 470
R26 3.9K
R12 390
EQ 2
TP1
TP2
TP3
TP4
C1 0.01
C4 0.01
C20 0.01
REC/PB 1.0 Vp-p
REC 0.1 Vp-p
NC
IC 1 VC2063FS
VCA 1
VCA 2
VCA 3
LIM
SLICE ARRAY
PHASE SHIFTER
Ao AMP
REC 0.17 Vp-p
REC 0.8 Vp-p
REC 1.0 Vp-p
PB 1.0 Vp-p
REC 0.3 Vp-p
REC 0.34 Vp-p
C11 0.01
C12 0.01
R19 1K
C14 0.01
C15 0.01
C16 0.01
R23 22K
TH2 1K
R24 22K
R25 2.7K
C17 100P
Q2
Q3
Q4
R13 22K
R14 22K
R15 1K
R16 1K
BPF 1
BPF 2
R17 1K
R29 47K
R30 47K
R31 560
R32 560
C18 47P
C19 0.01
R33 470
R27 2.2K
R18 820
R34 180
EQ 1
R20 1K
R21 1K
R22 4.7K
TH1 3.3K
R28 1.2K
REC/PB 1.0 Vp-p
RECORDING SIGNAL PATH
PLAYBACK SIGNAL PATH
REC/PLAY SIGNAL PATH
Q2, Q4 2SC4081(QR)
Q3 2SA1576(QR)
R33 Y-COMB 3
R22 Y-COMB 1
R24 Y-COMB 2

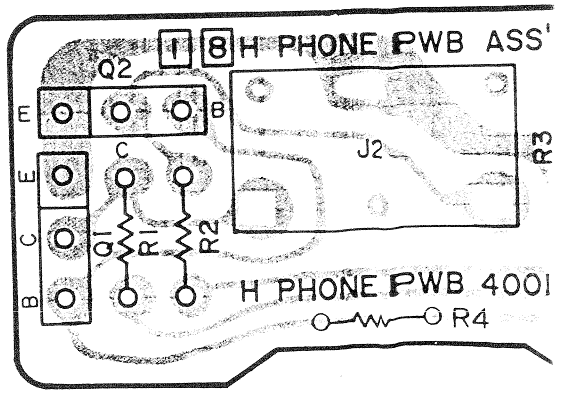
5.15 AUDIO/VIDEO CONNECTOR CIRCUIT BOARD

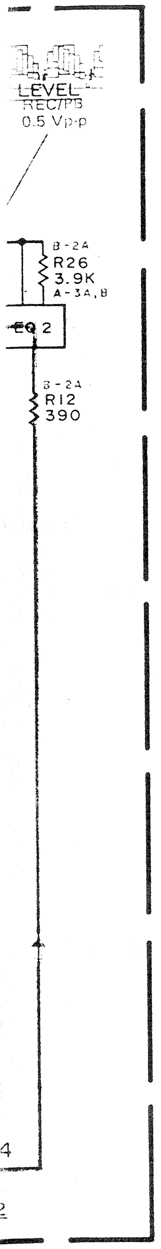

CN1 J001
CN2
CN3
R1
R3
J002
YB40029-01-0
04 A/V CONN PWB ASS'Y YB40029A-01
A/V CONN PWB YB40029-01-01

5.14 Y/C COMB CIRCUIT BOARD

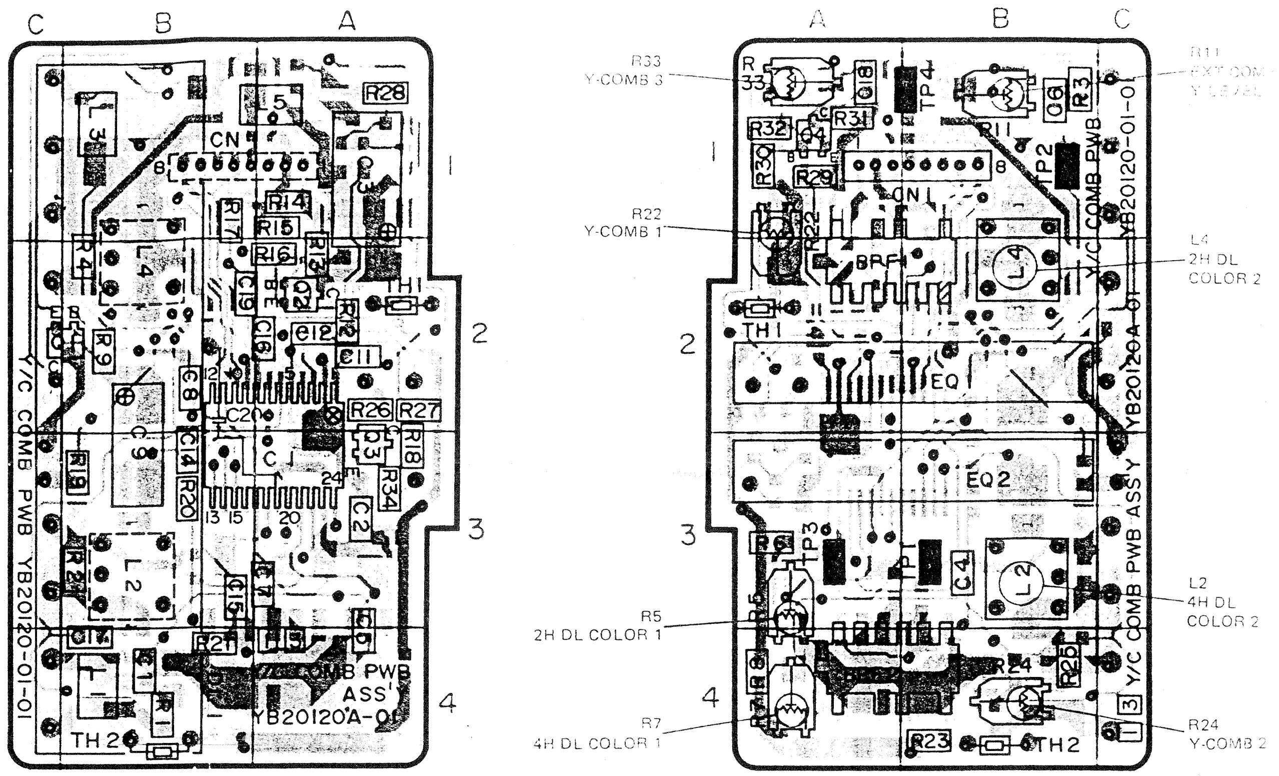

— Rear —
C
B
A
CN1
Y/C COMB PWB YB20120-01-01
YB20120A-0
TH2
R26
R14
R15
R16
R17
R19
R20
R21
R23
R27
C19
C20
C15
C16
IC1

5.16 HEADPHONE CIRCUIT BOARD


18 H PHONE PWB ASS'
Q2
J2
Q1
R1
R2
R3
H PHONE PWB 4001
R4
E
B
C


LEVEL
REC/PB
0.5 Vp-p
B-2A
R26
3.9K
A-3A, B
EQ 2
B-2A
R12
390
4

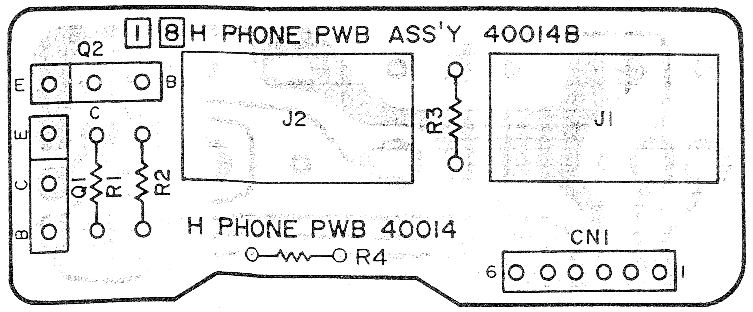
5.14 Y/C COMB CIRCUIT BOARD


— Rear —

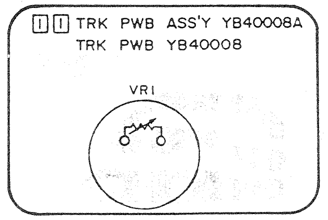
— Front —

C
B
A
1
2
3
4
CN
Y/C COMB PWB YB20120-01-01
COMB PWB ASS'Y YB20120A-01
TH2
A
B
C
R33 Y-COMB 3
R22 Y-COMB 1
R5 2H DL COLOR 1
R7 4H DL COLOR 1
R11 EXT COM Y LEVEL
L4 2H DL COLOR 2
L2 4H DL COLOR 2
R24 Y-COMB 2
CN1
EQ
EQ2
TH1
TH2
TP2
TP3
TP4
Y/C COMB PWB ASS'Y YB20120A-01

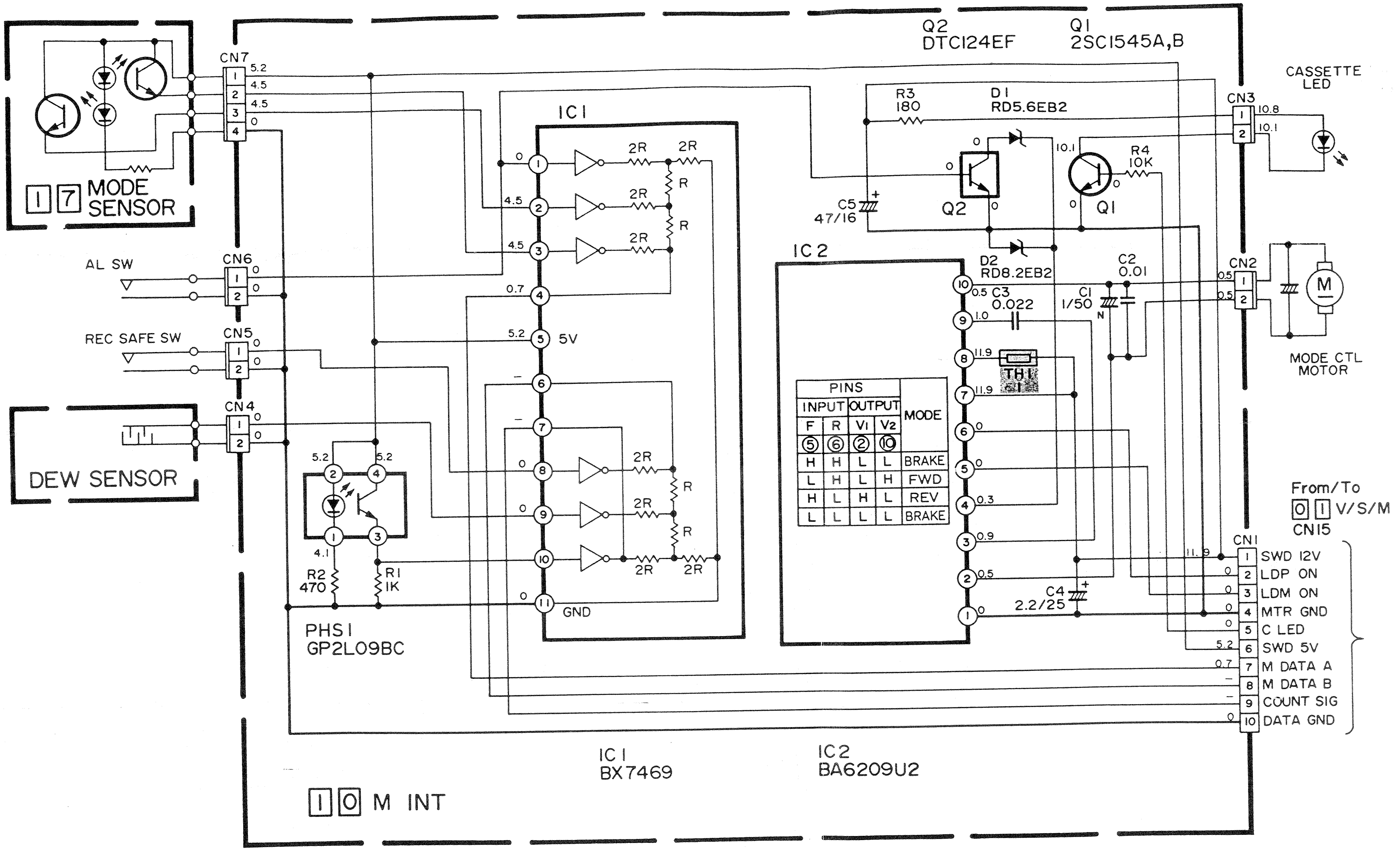
5.16 HEADPHONE CIRCUIT BOARD


1 8 H PHONE PWB ASS'Y 40014B
Q2
E C B
Q1
R1
R2
R3
J2
J1
H PHONE PWB 40014
R4
CN1
6
1

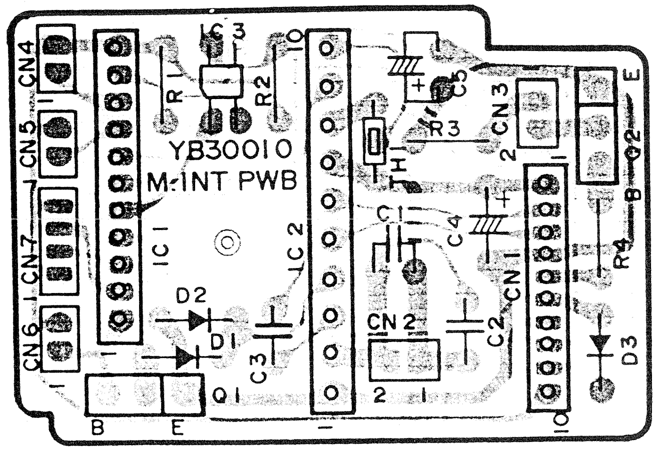
5.17 TRACKING CIRCUIT BOARD


1 1 TRK PWB ASS'Y YB40008A
TRK PWB YB40008
VR1

5.18 MECHACON INT SCHEMATIC DIAGRAM AND CIRCUIT BOARD

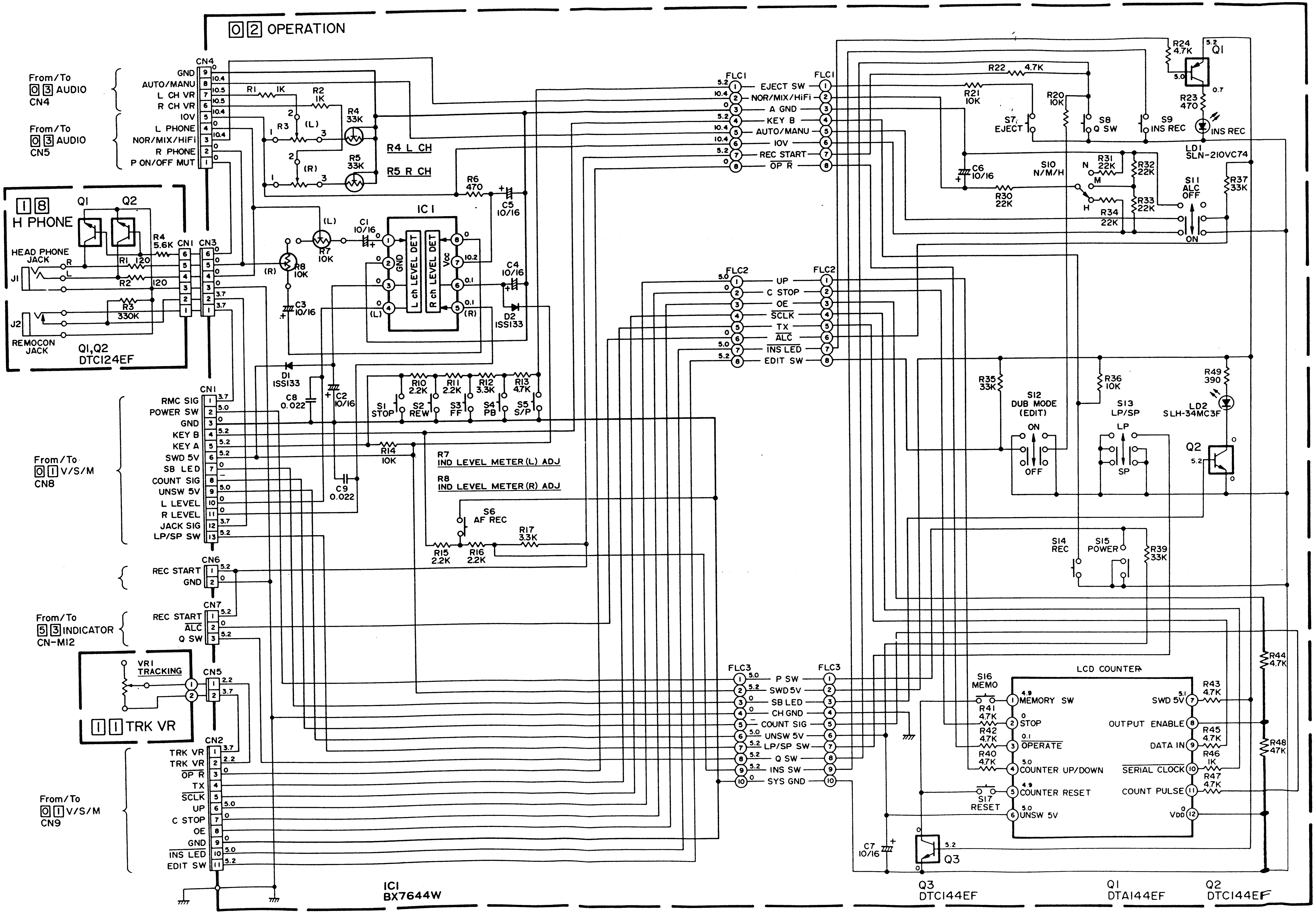

17 MODE SENSOR
CN7
5.2
4.5
4.5
0
AL SW
CN6
REC SAFE SW
CN5
CN4
DEW SENSOR
IC1
2R
R
5V
GND
PHS1
GP2L09BC
R2 470
R1 1K
Q2
DTC124EF
Q1
2SC1545A,B
R3 180
D1 RD5.6EB2
R4 10K
C5 47/16
IC2
D2 RD8.2EB2
C2 0.01
C3 0.022
C1 1/50
TH1
C4 2.2/25
CASSETTE LED
CN3
10.8
10.1
CN2
M
MODE CTL MOTOR
From/To
01 V/S/M
CN15
CN1
1 SWD 12V
2 LDP ON
3 LDM ON
4 MTR GND
5 C LED
6 SWD 5V
7 M DATA A
8 M DATA B
9 COUNT SIG
10 DATA GND
IC1
BX7469
IC2
BA6209U2
10 M INT

PINS				MODE
INPUT		OUTPUT		
F	R	V1	V2	
⑤	⑥	②	⑩	
H	H	L	L	BRAKE
L	H	L	H	FWD
H	L	H	L	REV
L	L	L	L	BRAKE

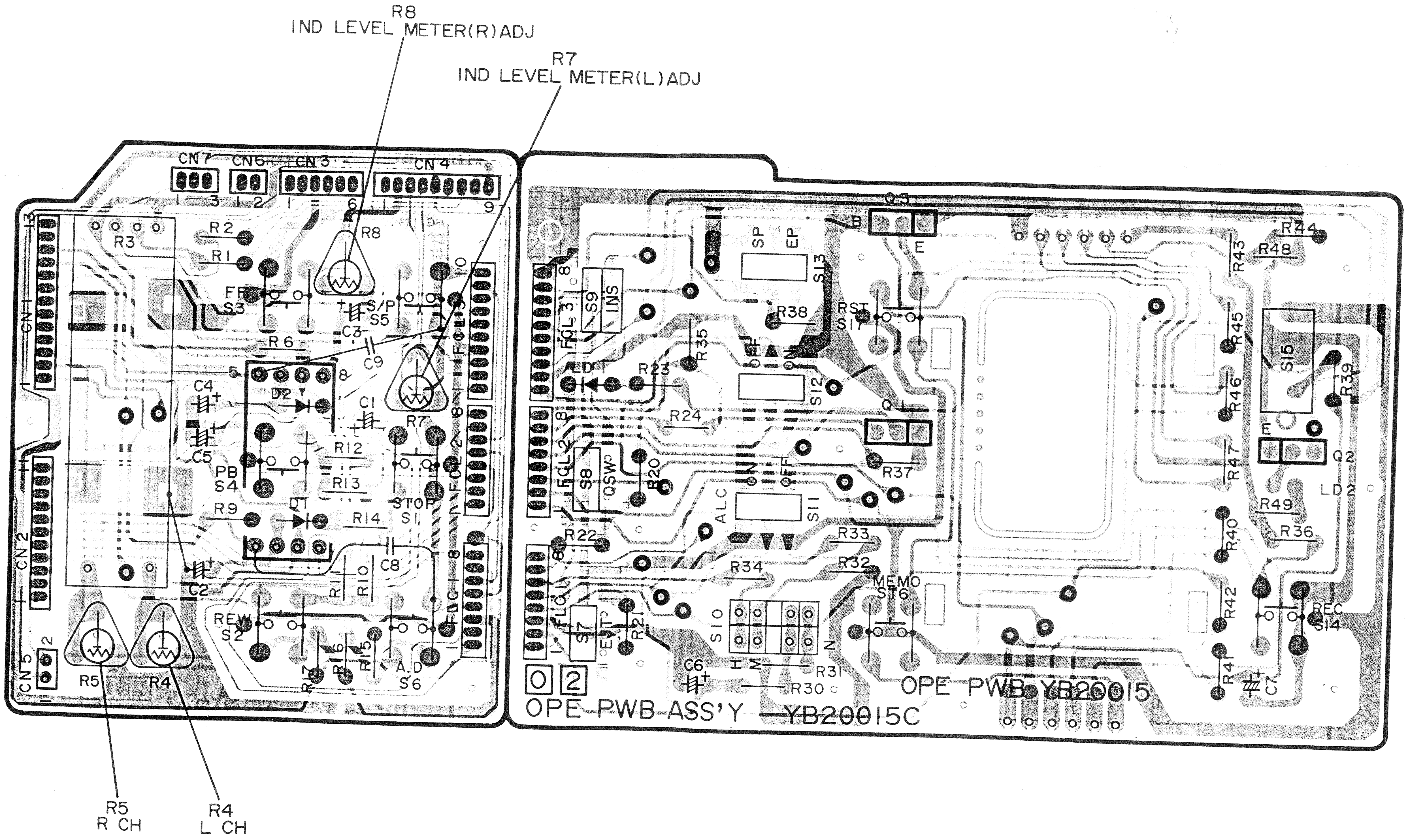

CN4
CN5
CN7
CN6
IC3
R1
R2
YB30010
M.INT PWB
IC1
IC2
D2
D1
C3
Q1
B
E
C5
R3
CN3
TH
C1
C4
C2
CN2
CN1
Q2
R4
D3
E
B

10 M INT PWB ASS'Y
YB30010B
M INT PWB
YB30010

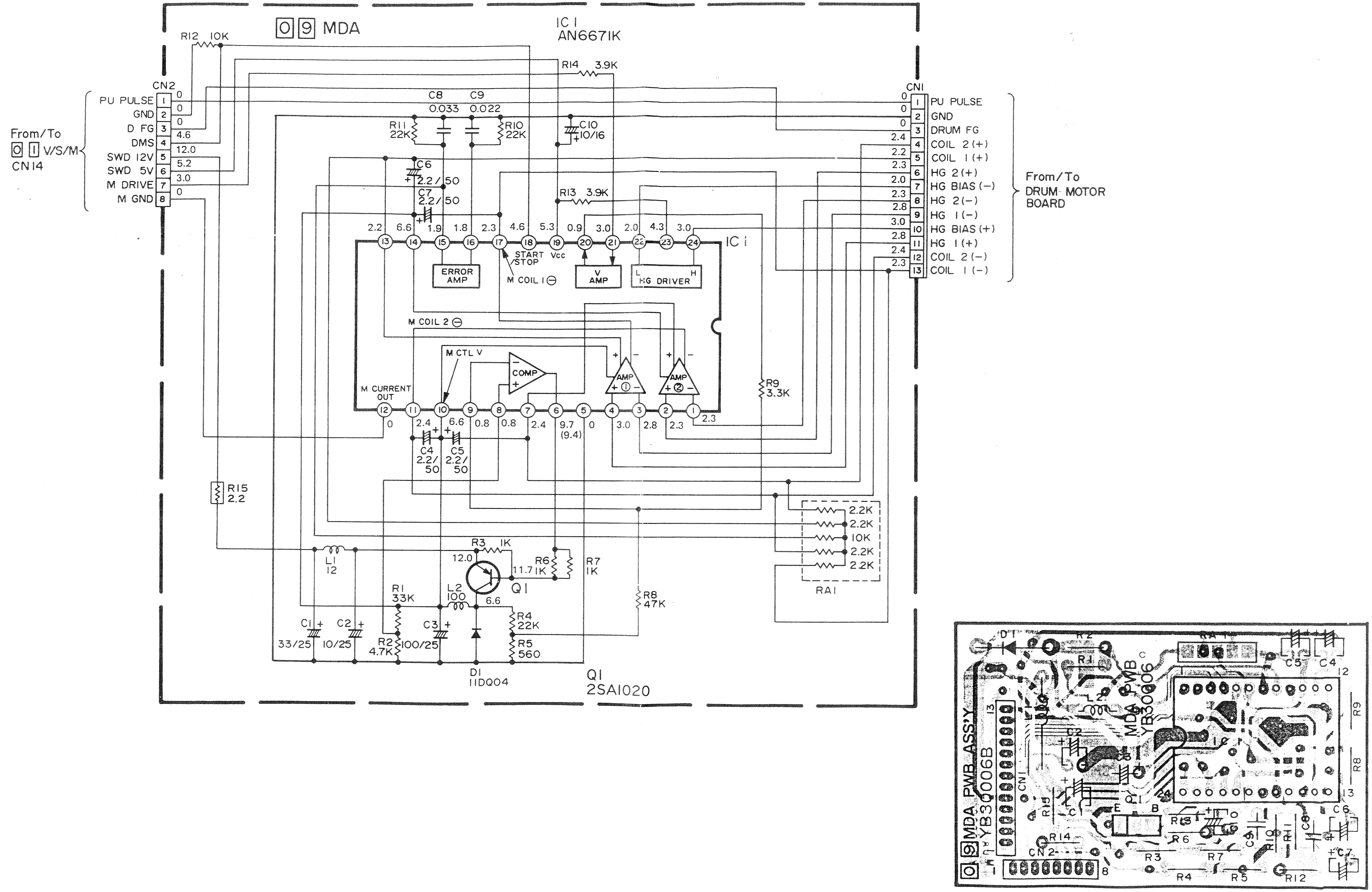
5.19 OPERATION SCHEMATIC DIAGRAM


02 OPERATION
From/To 03 AUDIO CN4
From/To 03 AUDIO CN5
CN4
GND
AUTO/MANU
L CH VR
R CH VR
IOV
L PHONE
NOR/MIX/HiFi
R PHONE
P ON/OFF MUT
18 H PHONE
Q1
Q2
HEAD PHONE JACK
J1
J2
REMOCON JACK
Q1,Q2 DTC124EF
R4 5.6K
R1 120
R2 120
R3 330K
CN1
CN3
R1 IK
R2 IK
R3
R4 33K
R5 33K
R4 L CH
R5 R CH
R6 470
C5 10/16
IC1
L ch LEVEL DET
R ch LEVEL DET
GND
Vcc
C1 10/16
R7 10K
R8 10K
C3 10/16
C4 10/16
D2 1SS133
D1 1SS133
C8 0.022
C2 10/16
C9 0.022
R10 2.2K
R11 2.2K
R12 3.3K
R13 4.7K
S1 STOP
S2 REW
S3 FF
S4 PB
S5 S/P
R14 10K
R7 IND LEVEL METER (L) ADJ
R8 IND LEVEL METER (R) ADJ
S6 AF REC
R15 2.2K
R16 2.2K
R17 3.3K
From/To 01 V/S/M CN8
RMC SIG
POWER SW
KEY B
KEY A
SWD 5V
SB LED
COUNT SIG
UNSW 5V
L LEVEL
R LEVEL
JACK SIG
LP/SP SW
CN6
REC START
From/To 53 INDICATOR CN-M12
CN7
ALC
Q SW
VR1 TRACKING
CN5
11 TRK VR
From/To 01 V/S/M CN9
CN2
TRK VR
OP R
TX
SCLK
UP
C STOP
OE
INS LED
EDIT SW
IC1 BX7644W
FLC1
EJECT SW
NOR/MIX/HiFi
A GND
KEY B
AUTO/MANU
IOV
REC START
OP R
FLC2
UP
C STOP
OE
SCLK
TX
ALC
INS LED
EDIT SW
FLC3
P SW
SWD 5V
SB LED
CH GND
COUNT SIG
UNSW 5V
LP/SP SW
Q SW
INS SW
SYS GND
R24 4.7K
Q1
R22 4.7K
R21 10K
R20 10K
R23 470
S7 EJECT
S8 Q SW
S9 INS REC
INS REC
LD1 SLN-210VC74
C6 10/16
S10 N/M/H
R30 22K
R31 22K
R32 22K
R33 22K
R34 22K
S11 ALC OFF
ON
R37 33K
R35 33K
R36 10K
S12 DUB MODE (EDIT)
ON
OFF
S13 LP/SP
LP
SP
R49 390
LD2 SLH-34MC3F
Q2
S14 REC
S15 POWER
R39 33K
R44 4.7K
R48 47K
LCD COUNTER
S16 MEMO
R41 4.7K
R42 4.7K
R40 4.7K
MEMORY SW
STOP
OPERATE
COUNTER UP/DOWN
COUNTER RESET
UNSW 5V
SWD 5V
OUTPUT ENABLE
DATA IN
SERIAL CLOCK
COUNT PULSE
VDD
R43 4.7K
R45 4.7K
R46 1K
R47 4.7K
S17 RESET
C7 10/16
Q3
Q3 DTC144EF
Q1 DTA144EF
Q2 DTC144EF

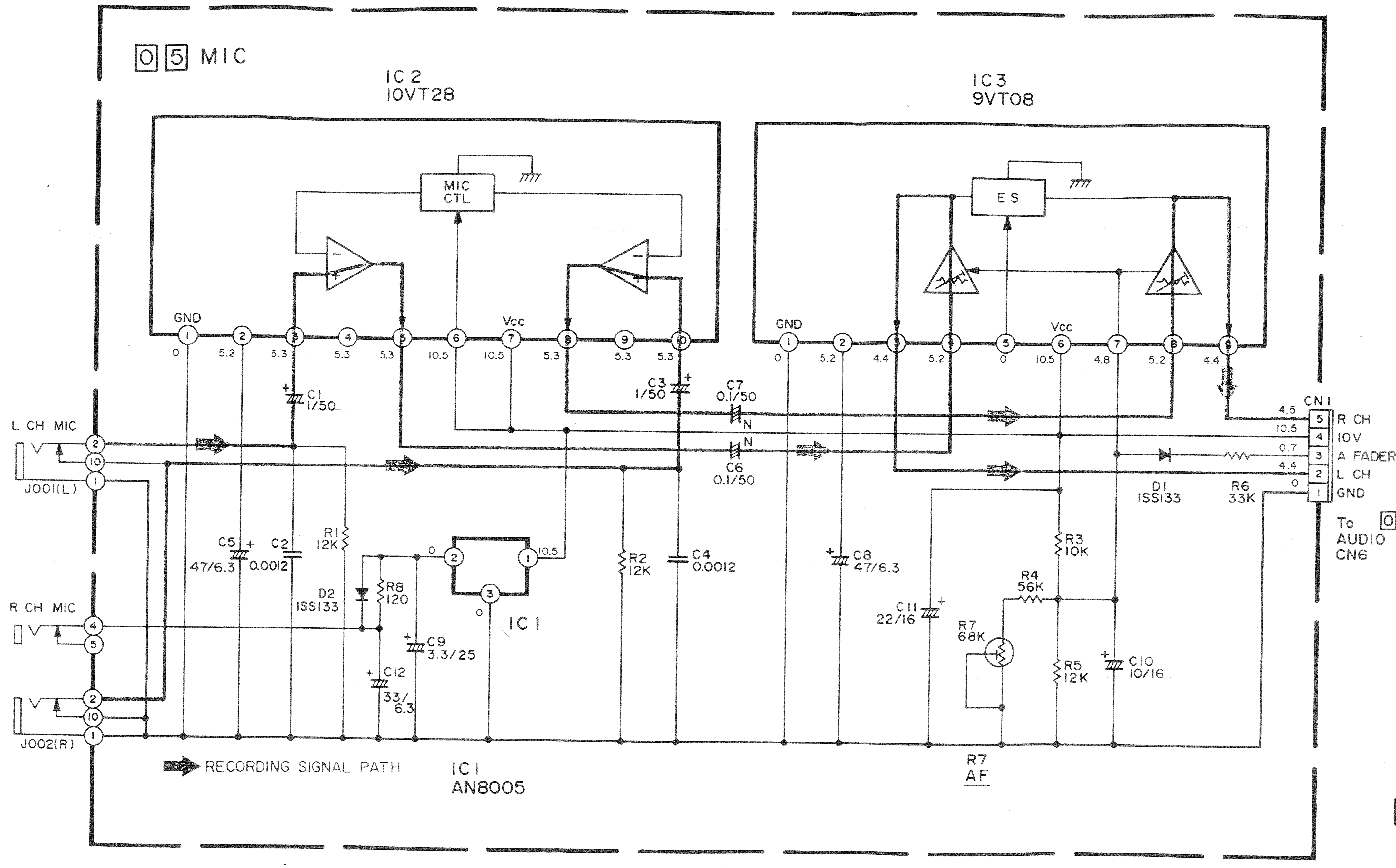
5.20 OPERATION CIRCUIT BOARD

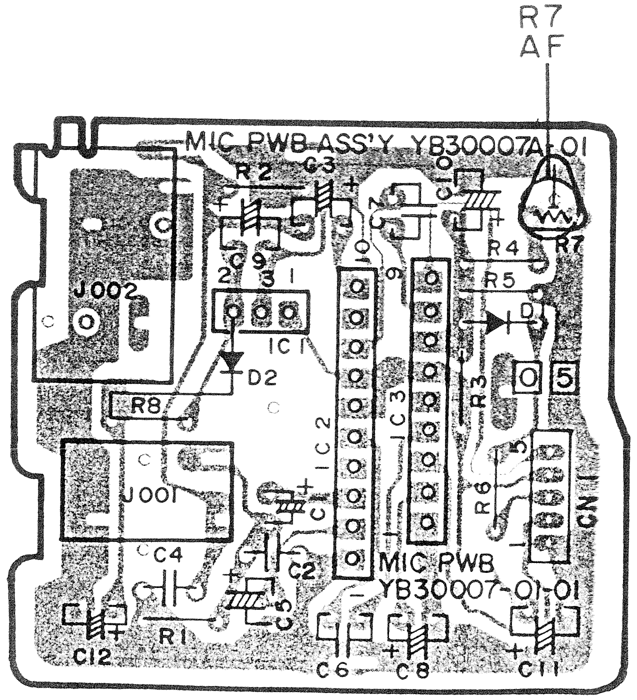

R8
IND LEVEL METER(R) ADJ
R7
IND LEVEL METER(L) ADJ
CN7
CN6
CN3
CN4
CN1
CN2
CN5
R1
R2
R3
R6
R9
R12
R13
R14
R10
R11
R15
R16
R17
FF S3
S/P S5
C3
C9
C4
C5
C1
C2
C8
D1
D2
PB S4
STOP S1
REW S2
A.D S6
FCL 1
FCL 2
FCL 3
FCL
R5
R4
R5
R CH
R4
L CH
SP
EP
S13
S9
INS
R38
RST S17
Q3
B
E
R35
LD1
R23
S12
R24
Q1
R37
S8
QSW
R20
ALC
S11
R22
R33
R34
R32
MEMO S16
S7
R21
S10
H
M
N
C6
R31
R30
R44
R48
R43
R45
S15
R39
R46
E
Q2
R47
LD2
R49
R36
R40
R42
REC S14
R41
C7
OPE PWB YB20015
OPE PWB ASS'Y YB20015C
0
2

5.21 MDA SCHEMATIC DIAGRAM AND CIRCUIT BOARD

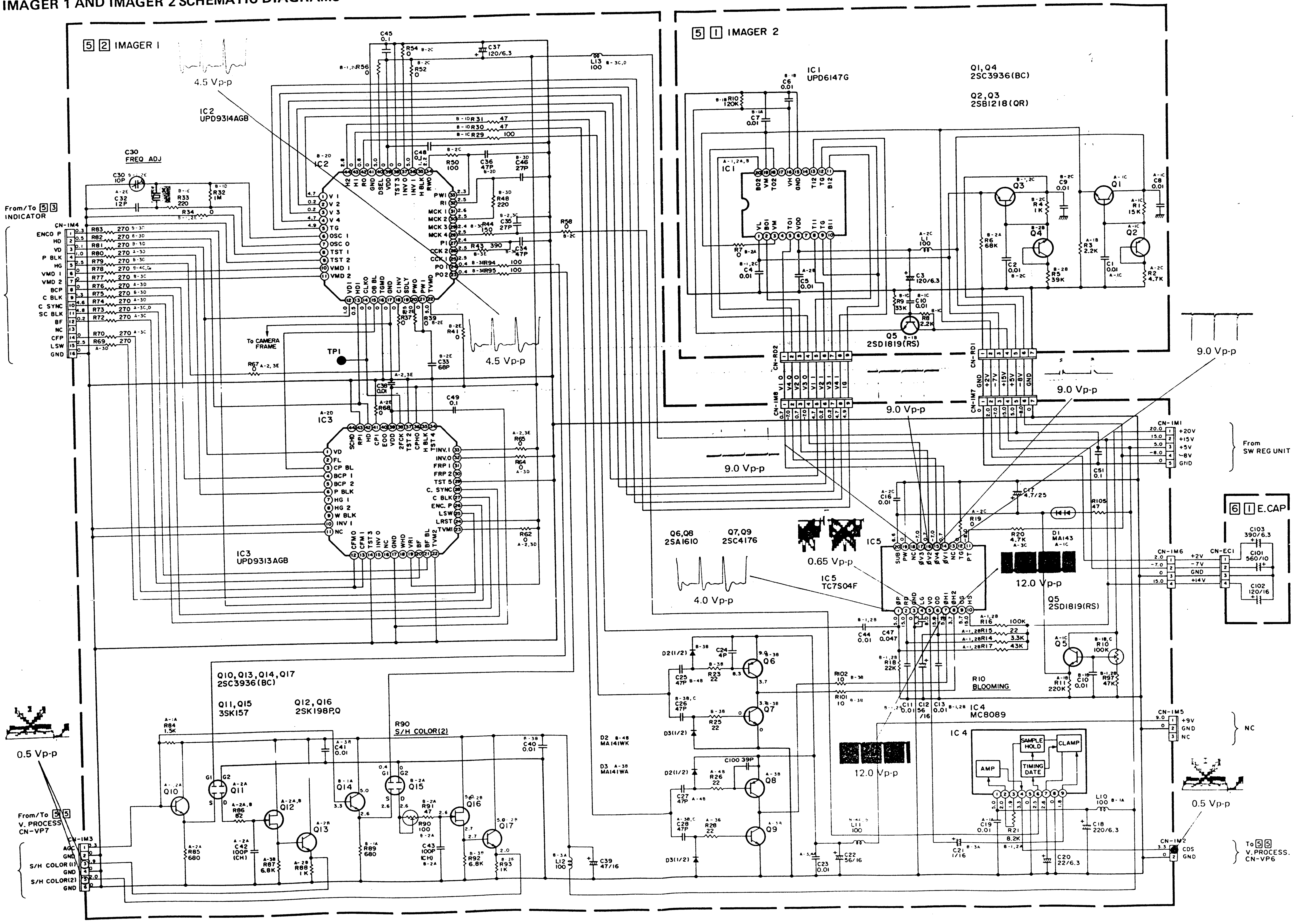

09 MDA
IC1 AN6671K
R12 10K
R14 3.9K
CN2
PU PULSE 1
GND 2
D FG 3
DMS 4
SWD 12V 5
SWD 5V 6
M DRIVE 7
M GND 8
From/To
01 V/S/M
CN14
C8 0.033
C9 0.022
R11 22K
R10 22K
C10 10/16
C6 2.2/50
C7 2.2/50
R13 3.9K
ERROR AMP
START /STOP
Vcc
M COIL 1 ⊖
V AMP
HG DRIVER
IC i
M COIL 2 ⊖
M CTL V
COMP
AMP ①
AMP ②
M CURRENT OUT
C4 2.2/50
C5 2.2/50
R9 3.3K
R15 2.2
RA1
2.2K
2.2K
10K
2.2K
2.2K
L1 12
R3 1K
R6 1K
R7 1K
Q1
R1 33K
L2 100
R8 47K
R4 22K
R5 560
C1 33/25
C2 10/25
R2 4.7K
C3 100/25
D1 11DQ04
Q1 2SA1020
CN1
PU PULSE
GND
DRUM FG
COIL 2 (+)
COIL 1 (+)
HG 2 (+)
HG BIAS (−)
HG 2 (−)
HG 1 (−)
HG BIAS (+)
HG 1 (+)
COIL 2 (−)
COIL 1 (−)
From/To
DRUM MOTOR BOARD
09 MDA PWB ASS'Y YB30006B
MDA PWB YB30006
CN1
CN2
D1
R1
R2
RA1
C5
C4
R9
R8
C6
C7
C8
C9
R10
R11
R12
R13
R14
R15
R3
R4
R5
R6
R7
L2
C2
E
B
C

5.22 MIC SCHEMATIC DIAGRAM AND CIRCUIT BOARD

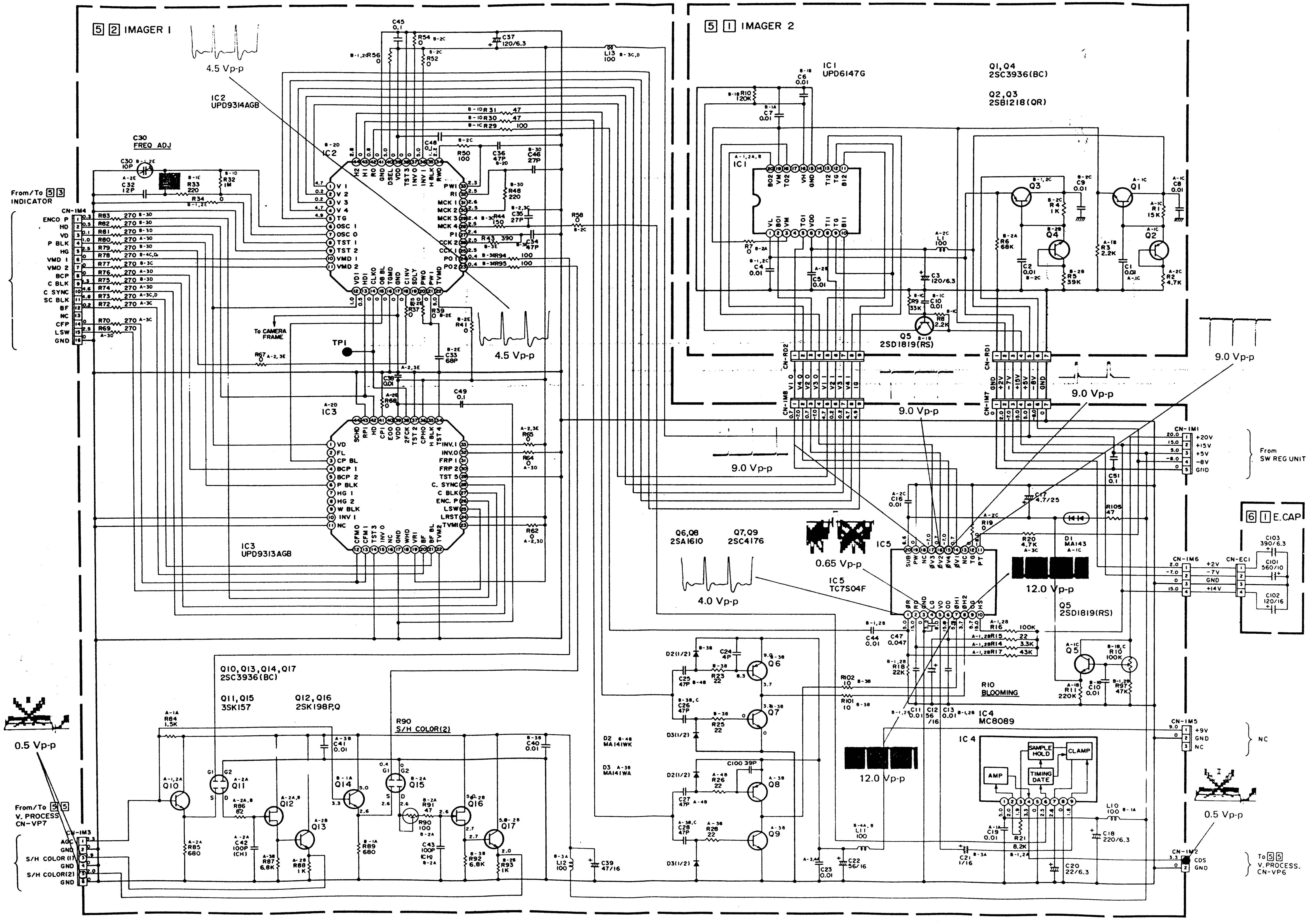

05 MIC
IC 2
10VT28
MIC CTL
IC3
9VT08
ES
GND
Vcc
0
5.2
5.3
10.5
4.4
4.8
C1
1/50
C3
1/50
C7
0.1/50
N
C6
0.1/50
CN1
4.5
10.5
0.7
4.4
0
R CH
10V
A FADER
L CH
GND
D1
ISS133
R6
33K
To 03
AUDIO
CN6
L CH MIC
J001(L)
R CH MIC
J002(R)
C5
47/6.3
C2
0.0012
R1
12K
D2
ISS133
R8
120
C9
3.3/25
C12
33/6.3
IC1
R2
12K
C4
0.0012
C8
47/6.3
C11
22/16
R7
68K
R3
10K
R4
56K
R5
12K
C10
10/16
RECORDING SIGNAL PATH
IC1
AN8005
R7
AF


R7
AF
MIC PWB ASS'Y YB30007A-01
R2
C3
C9
J002
IC1
D2
R8
J001
C4
C2
C5
C12
R1
IC2
IC3
R4
R5
D1
R3
R6
CN1
05
MIC PWB
YB30007-01-01
C6
C8
C11

5.23 IMAGER 1 AND IMAGER 2 SCHEMATIC DIAGRAMS


5 2 IMAGER I
5 1 IMAGER 2
IC2 UPD9314AGB
IC3 UPD9313AGB
IC1 UPD6147G
Q1,Q4 2SC3936(BC)
Q2,Q3 2SB1218(QR)
Q5 2SD1819(RS)
Q6,Q8 2SA1610
Q7,Q9 2SC4176
IC5 TC7S04F
IC4 MC8089
Q10,Q13,Q14,Q17 2SC3936(BC)
Q11,Q15 3SK157
Q12,Q16 2SK198P,Q
R90 S/H COLOR(2)
R10 BLOOMING
C30 FREQ ADJ
D2 MA141WK
D3 MA141WA
D1 MA143
From/To 5 3 INDICATOR
ENCO P
HD
VD
P BLK
HG
VMD 1
VMD 2
BCP
C BLK
C SYNC
SC BLK
BF
NC
CFP
LSW
GND
CN-IM4
To CAMERA FRAME
TP1
CN-IM1
+20V
+15V
+5V
−8V
GND
From SW REG UNIT
6 1 E.CAP
CN-IM6
CN-EC1
+2V
−7V
GND
+14V
C103 390/6.3
C101 560/10
C102 120/16
CN-IM5
+9V
GND
NC
NC
CN-IM2
CDS
GND
To 5 5 V.PROCESS. CN-VP6
From/To 5 5 V. PROCESS CN-VP7
CN-IM3
AGC
GND
S/H COLOR(1)
GND
S/H COLOR(2)
GND
CN-RD2
CN-RD1
CN-IM8
CN-IM7
SAMPLE HOLD
CLAMP
AMP
TIMING DATE
4.5 Vp-p
4.5 Vp-p
9.0 Vp-p
9.0 Vp-p
9.0 Vp-p
9.0 Vp-p
0.65 Vp-p
4.0 Vp-p
12.0 Vp-p
12.0 Vp-p
0.5 Vp-p
0.5 Vp-p

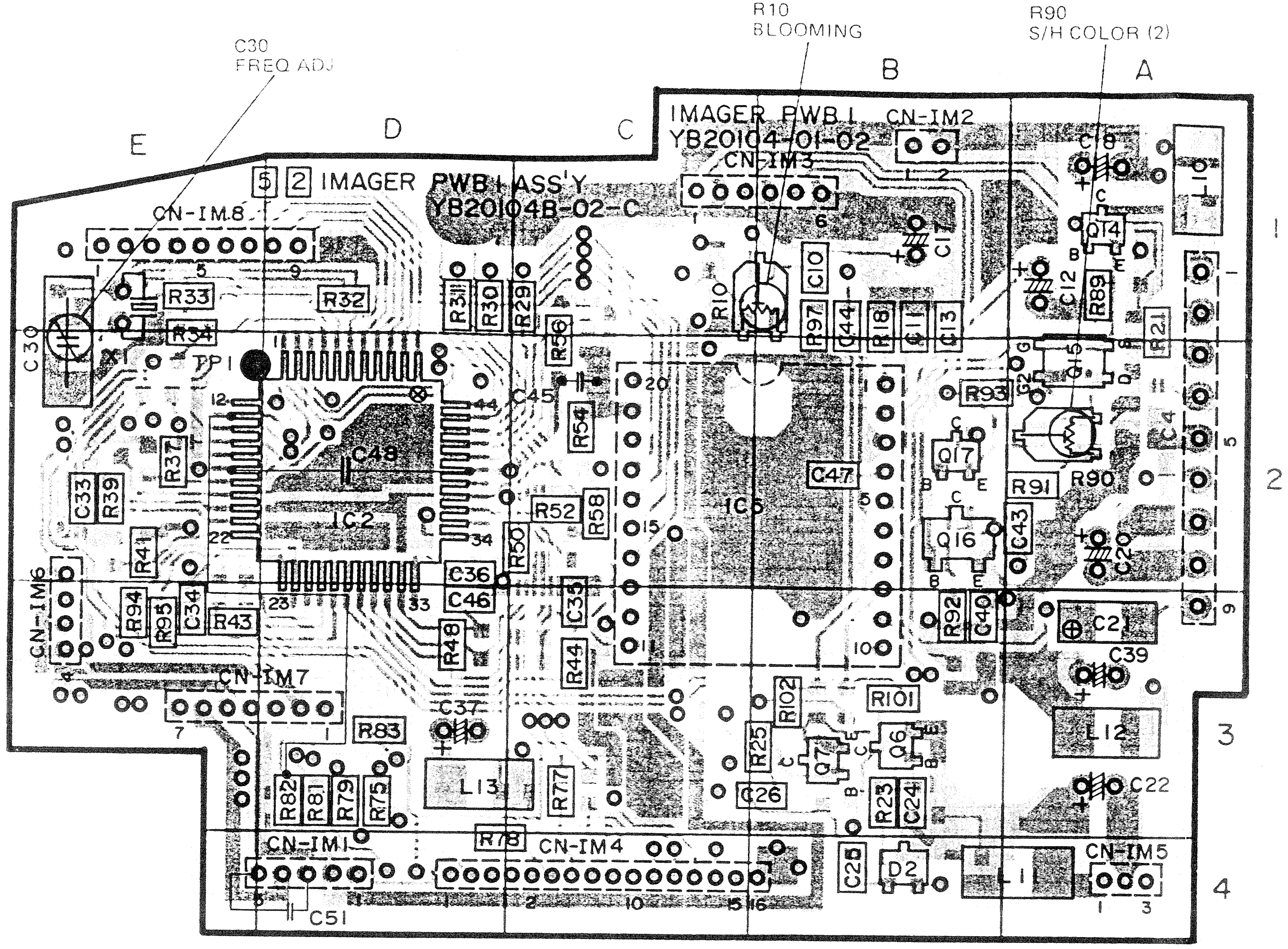
5.23 IMAGER 1 AND IMAGER 2 SCHEMATIC DIAGRAMS


5 2 IMAGER 1
5 1 IMAGER 2
4.5 Vp-p
IC2 UPD9314AGB
IC3 UPD9313AGB
C30 FREQ ADJ
From/To 5 3 INDICATOR
CN-IM4
ENCO P
HD
VD
P BLK
HG
VMD 1
VMD 2
BCP
C BLK
C SYNC
SC BLK
BF
NC
CFP
LSW
GND
To CAMERA FRAME
TP1
IC1 UPD6147G
Q1,Q4 2SC3936(BC)
Q2,Q3 2SB1218(QR)
Q5 2SD1819(RS)
CN-RD2
CN-RD1
CN-IM8
CN-IM7
9.0 Vp-p
CN-IM1
+20V
+15V
+5V
-8V
GND
From SW REG UNIT
6 1 E.CAP
CN-IM6
CN-EC1
+2V
-7V
GND
+14V
C103 390/6.3
C101 560/10
C102 120/16
Q6,Q8 2SA1610
Q7,Q9 2SC4176
IC5
0.65 Vp-p
IC5 TC7S04F
4.0 Vp-p
12.0 Vp-p
D1 MA143
R10 BLOOMING
IC4 MC8089
IC 4
AMP
SAMPLE HOLD
TIMING DATE
CLAMP
CN-IM5
+9V
GND
NC
NC
0.5 Vp-p
CN-IM2
CDS
GND
To 5 5 V. PROCESS. CN-VP6
Q10,Q13,Q14,Q17 2SC3936(BC)
Q11,Q15 3SK157
Q12,Q16 2SK198P,Q
R90 S/H COLOR(2)
D2 MA141WK
D3 MA141WA
From/To 5 5 V. PROCESS CN-VP7
CN-IM3
AGC
GND
S/H COLOR(1)
GND
S/H COLOR(2)
GND

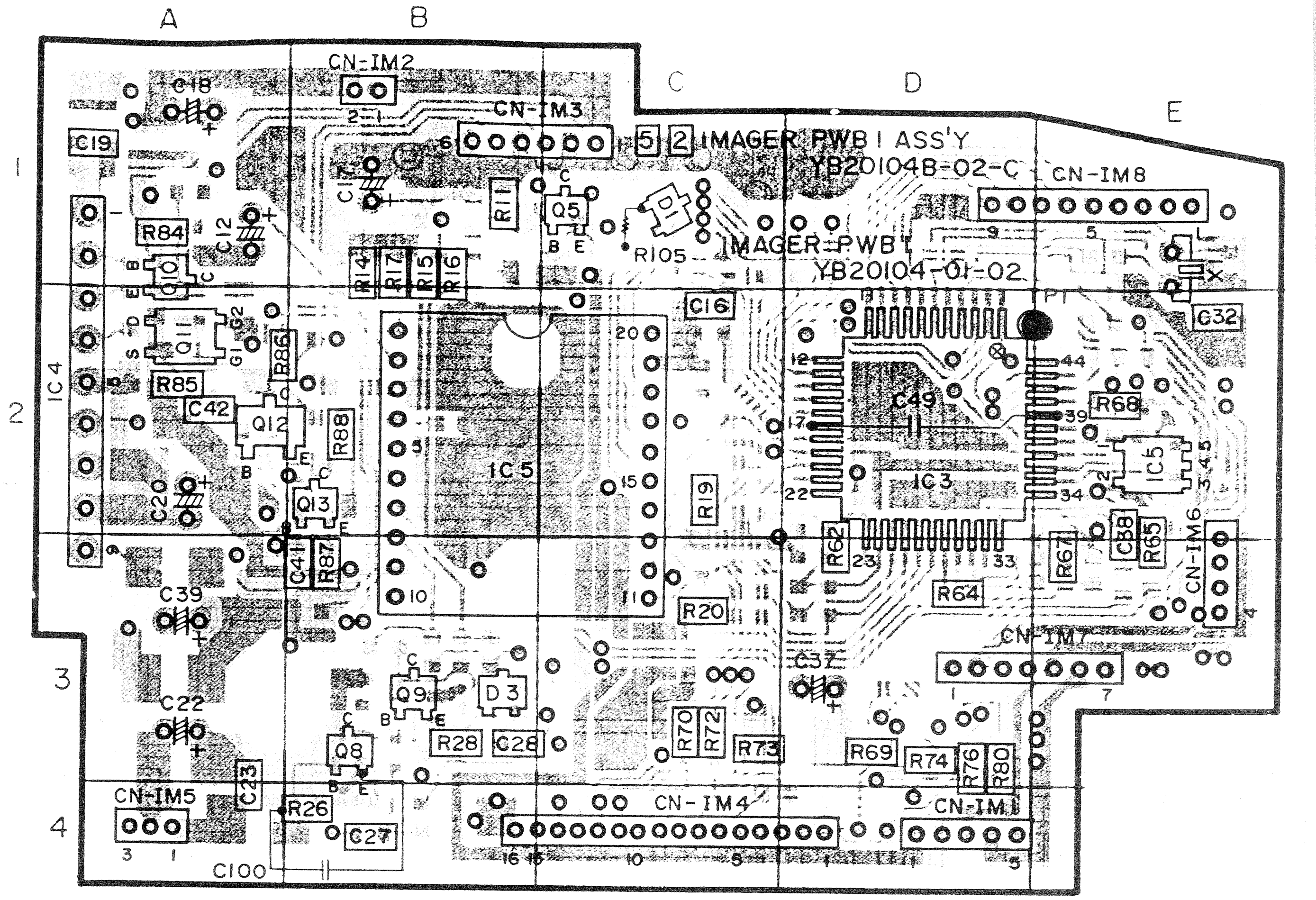
5.24 IMAGER 1 AND IMAGER 2 CIRCUIT BOARDS

— IMAGER 1 —

— Rear —

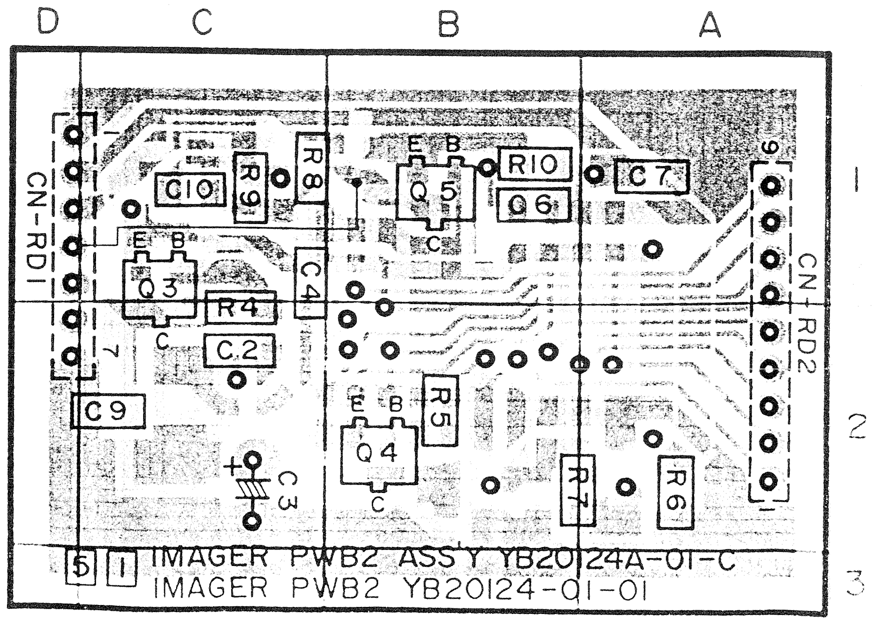

R10
BLOOMING
R90
S/H COLOR (2)
C30
FREQ ADJ
E
D
C
B
A
1
2
3
4
5 2 IMAGER PWB I ASS'Y YB20104B-02-C
IMAGER PWB I YB20104-01-02
CN-IM1
CN-IM2
CN-IM3
CN-IM4
CN-IM5
CN-IM6
CN-IM7
CN-IM8
IC2
IC5
TP1

— Front —

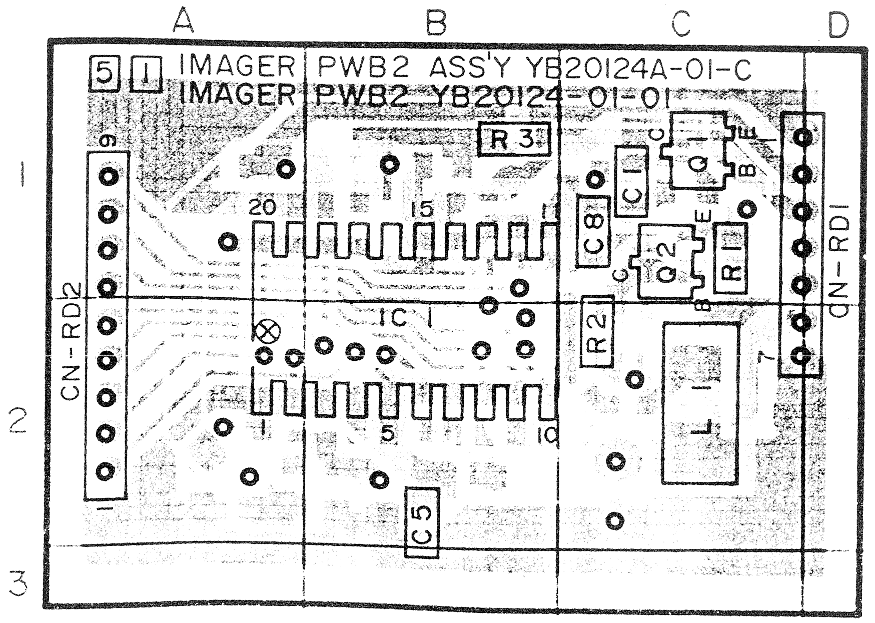

A
B
C
D
E
1
2
3
4
5 2 IMAGER PWB I ASS'Y YB20104B-02-C
IMAGER PWB I YB20104-01-02
CN-IM1
CN-IM2
CN-IM3
CN-IM4
CN-IM5
CN-IM6
CN-IM7
CN-IM8
IC3
IC4
IC5
TP1

— IMAGER 2 —

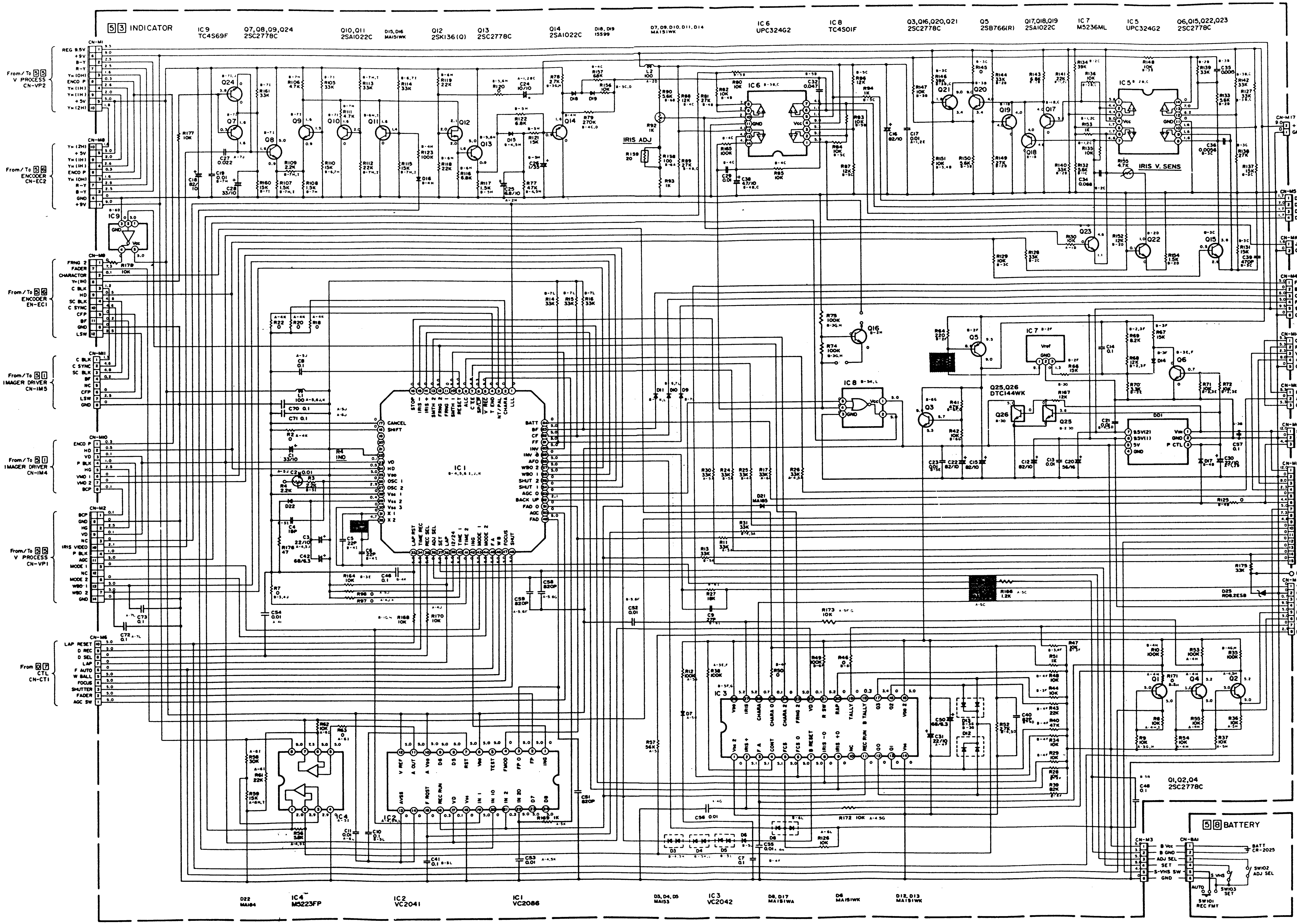
— Rear —


D
C
B
A
1
2
3
CN-RD1
CN-RD2
5 1 IMAGER PWB2 ASS'Y YB20124A-01-C
IMAGER PWB2 YB20124-01-01

— Front —

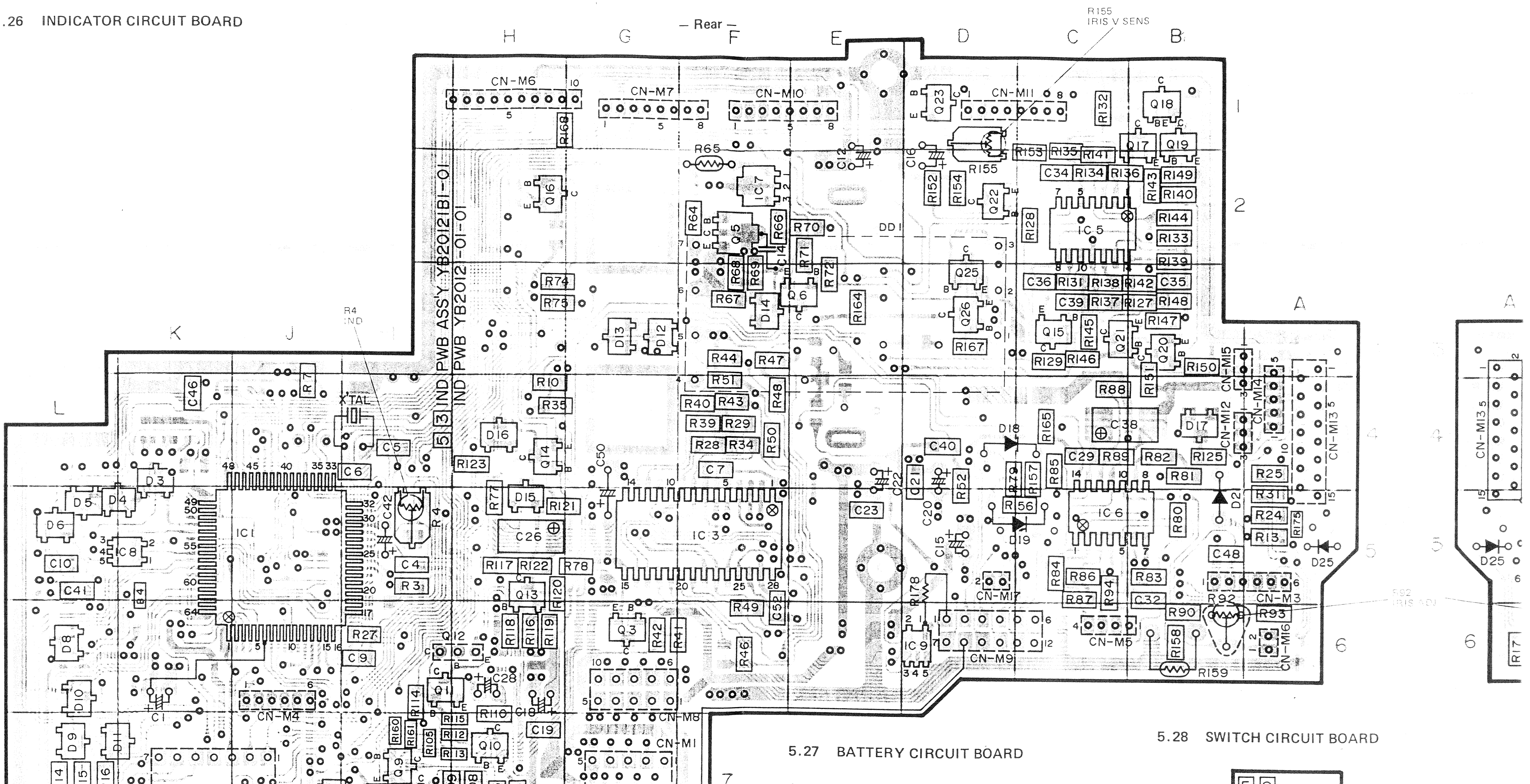

A
B
C
D
1
2
3
5 1 IMAGER PWB2 ASS'Y YB20124A-01-C
IMAGER PWB2 YB20124-01-01
CN-RD1
CN-RD2
IC1

5.25 INDICATOR SCHEMATIC DIAGRAM

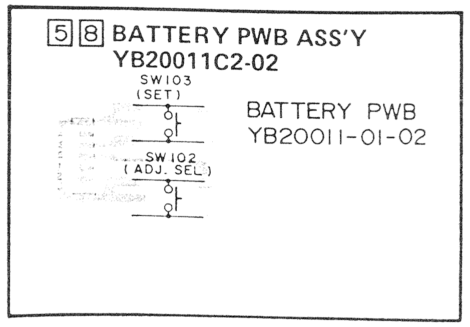


53 INDICATOR
IC9 TC4S69F
Q7,Q8,Q9,Q24 2SC2778C
Q10,Q11 2SA1022C
D15,D16 MA151WK
Q12 2SK136(Q)
Q13 2SC2778C
Q14 2SA1022C
D18,D19 1SS99
D7,D9,D10,D11,D14 MA151WK
IC6 UPC324G2
IC8 TC4S01F
Q3,Q16,Q20,Q21 2SC2778C
Q5 2SB766(R)
Q17,Q18,Q19 2SA1022C
IC7 M5236ML
IC5 UPC324G2
Q6,Q15,Q22,Q23 2SC2778C
From/To 55 V PROCESS CN-VP2
From/To 56 ENCODER CN-EC2
From/To 56 ENCODER EN-EC1
From/To 51 IMAGER DRIVER CN-IM5
From/To 51 IMAGER DRIVER CN-IM4
From/To 55 V PROCESS CN-VP1
From 57 CTL CN-CT1
IRIS ADJ
IRIS V. SENS
IRIS M
For JIG
From/To OP ASS'Y UNIT
From/To 57 CTL CN-CT3
From/To 59 OPERATION CN7
To SW REG UNIT
From/To 61 V/S/M CN6
EH OUT TO VF CONN
From/To 57 CTL CN-CT2
Q25,Q26 DTC144WK
IC1
IC2
IC3
IC4
Q1,Q2,Q4 2SC2778C
58 BATTERY
BATT CR-2025
SW102 ADJ SEL
SW103 SET
SW101 REC FMT
D22 MA164
IC4 M5223FP
IC2 VC2041
IC1 VC2086
D3, D4, D5 MA153
IC3 VC2042
D8, D17 MA151WA
D6 MA151WK
D12, D13 MA151WK

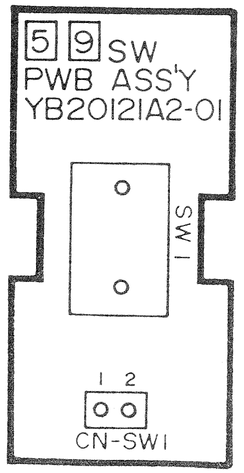
5.26 INDICATOR CIRCUIT BOARD

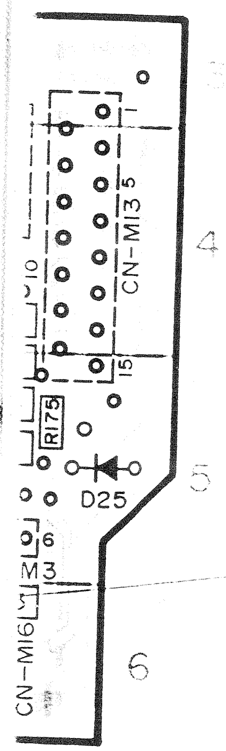

— Rear —
H
G
F
E
D
C
B
A
K
J
L
1
2
3
4
5
6
7
R155
IRIS V SENS
R4
IND
5 3 IND PWB ASS'Y YB20121B1-01
IND PWB YB20121-01-01
CN-M6
CN-M7
CN-M10
CN-M11
CN-M2
CN-M4
CN-M8
CN-M1
CN-M9
CN-M5
CN-M3
CN-M17
CN-M16
CN-M12
CN-M14
CN-M15
CN-M13
IC1
IC3
IC5
IC6
IC7
IC8
IC9
X'TAL
DD1
R92
IRIS ADJ
D25

5.27 BATTERY CIRCUIT BOARD

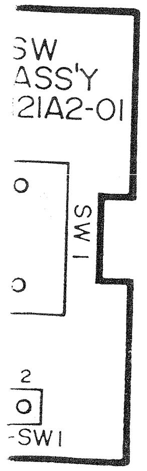

5 8 BATTERY PWB ASS'Y
YB20011C2-02
SW103
(SET)
SW102
(ADJ. SEL.)
BATTERY PWB
YB20011-01-02

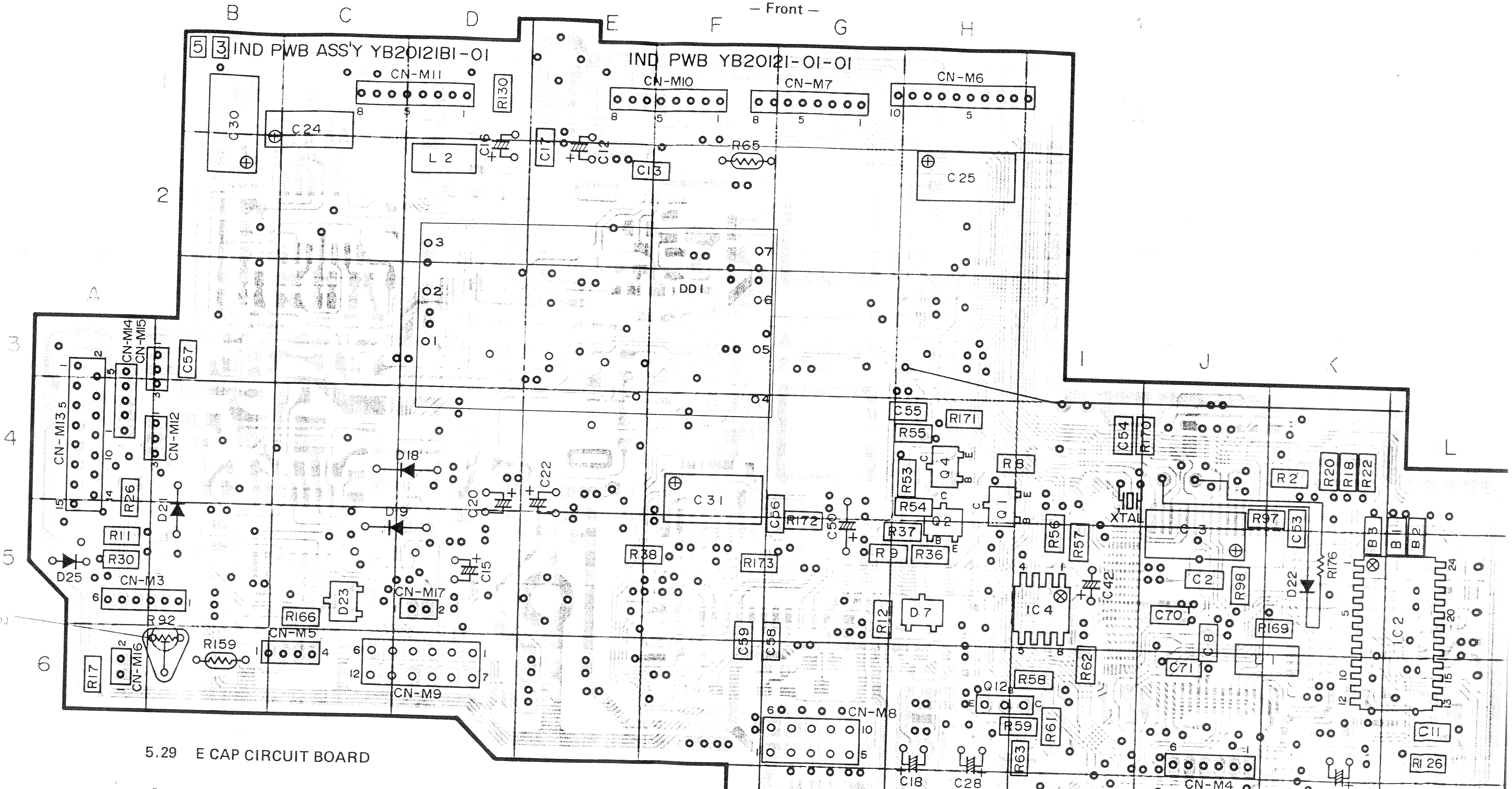
5.28 SWITCH CIRCUIT BOARD


5 9 SW
PWB ASS'Y
YB20121A2-01
SW1
1 2
CN-SW1

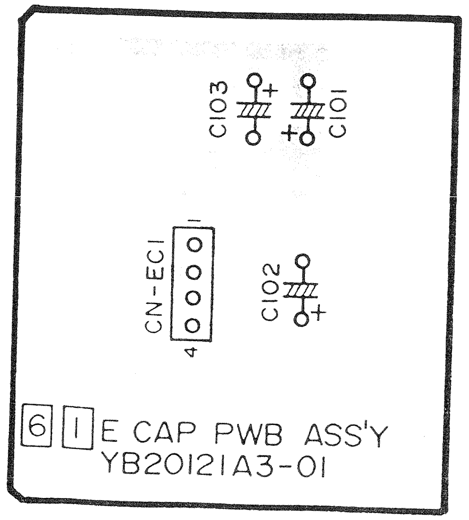

A
CN-M13
CN-M16
R175
D25
M3
R82 15/3 ADJ
3
4
5
6

RCUIT BOARD


SW
ASS'Y
21A2-01
1 MS
-SW1

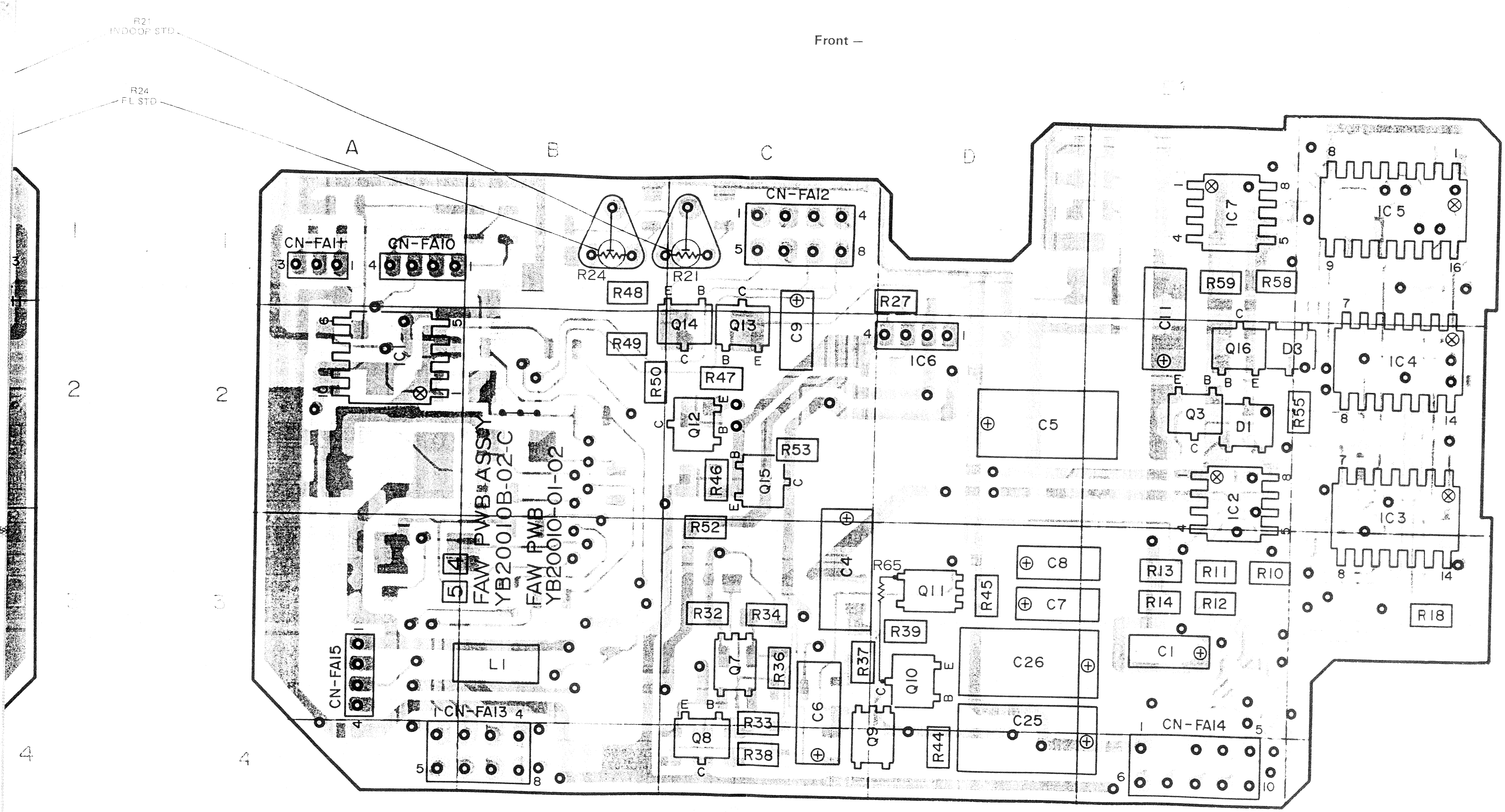

– Front –
5 3 IND PWB ASS'Y YB20121B1-01
IND PWB YB20121-01-01
B
C
D
E
F
G
H
I
J
K
L
A
2
3
4
5
6
7
CN-M11
CN-M10
CN-M7
CN-M6
C30
C24
L2
C16
C17
C12
C13
R65
C25
R130
DD1
CN-M13
CN-M14
CN-M15
CN-M12
C57
R26
D21
D18
D19
C20
C22
C31
R38
C56
R172
C50
R173
C55
R55
R171
Q4
R53
R54
Q2
R37
R9
R36
Q1
R8
R56
R57
XTAL
C54
R170
C3
R97
C53
R2
R20
R18
R22
B3
B1
B2
IC2
R176
D22
C2
R98
C70
R169
C8
C71
IC4
C42
D7
R12
C59
C58
R58
Q12
R59
R61
R62
R63
C18
C28
CN-M8
CN-M4
C1
C11
R126
CN-M1
CN-M2
C27
C72
C73
R11
R30
D25
CN-M3
R92
R17
CN-M16
R159
CN-M5
R166
D23
CN-M17
C15
CN-M9

5.29 E CAP CIRCUIT BOARD


C103
C101
CN-EC1
C102

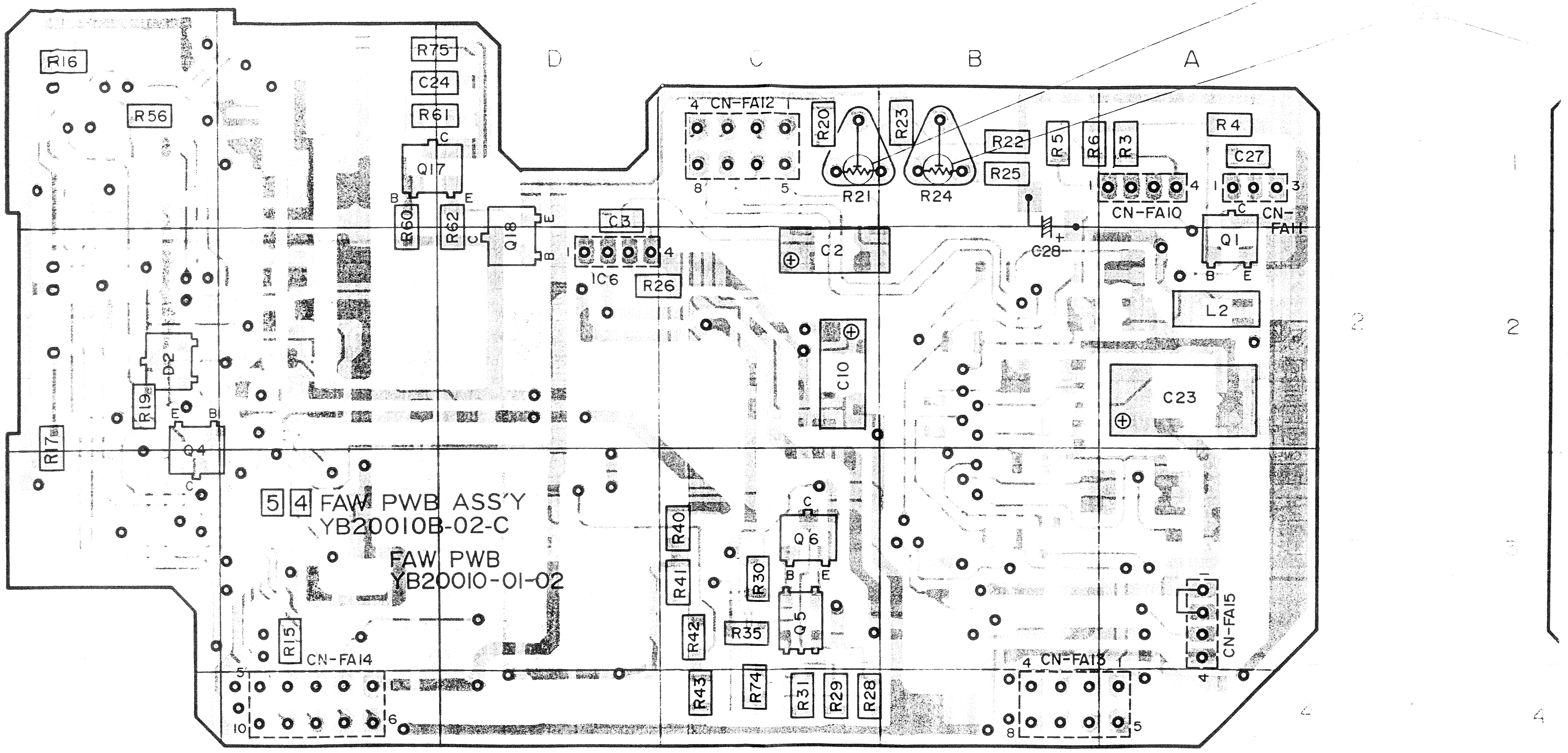
6 1 E CAP PWB ASS'Y
YB20121A3-01

Front –

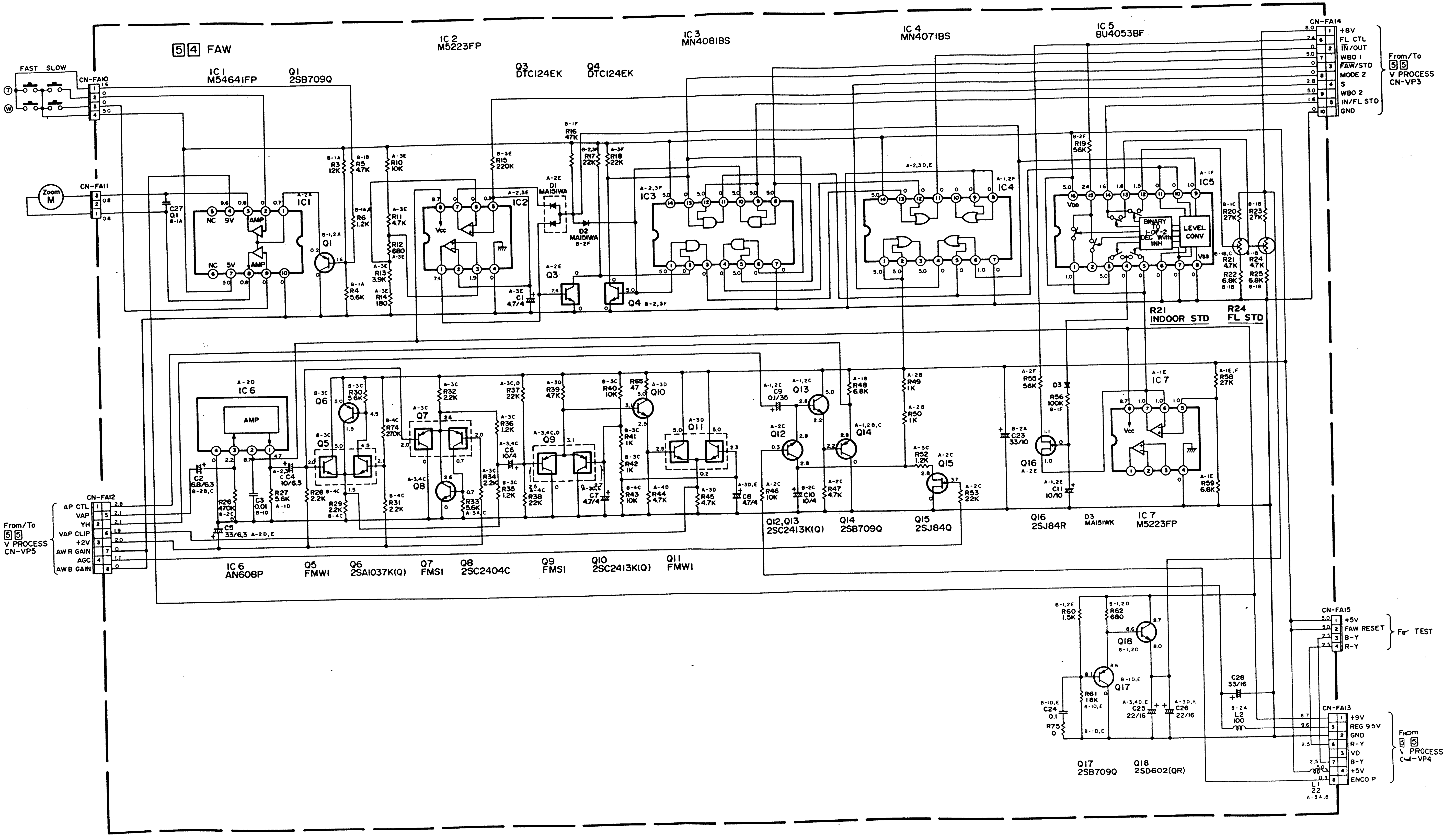

R21 INDOOR STD
R24 FL STD
A
B
C
D
1
2
3
4
CN-FA11
CN-FA10
CN-FA12
CN-FA13
CN-FA14
CN-FA15
R24
R21
R48
R49
R50
R47
Q14
Q13
C9
R27
IC6
IC7
IC5
IC4
IC3
IC2
IC1
Q16
D3
Q3
D1
R55
R59
R58
C11
C5
FAW PWB ASSY
YB20010B-02-C
FAW PWB1
YB20010-01-02
Q12
Q15
R53
R46
R52
C4
R65
Q11
R45
C8
C7
R13
R11
R10
R14
R12
R18
R39
C26
C1
R32
R34
Q7
R36
R37
Q10
C6
Q8
R33
R38
Q9
R44
C25
L1

5.30 FAW CIRCUIT BOARD

— Rear —

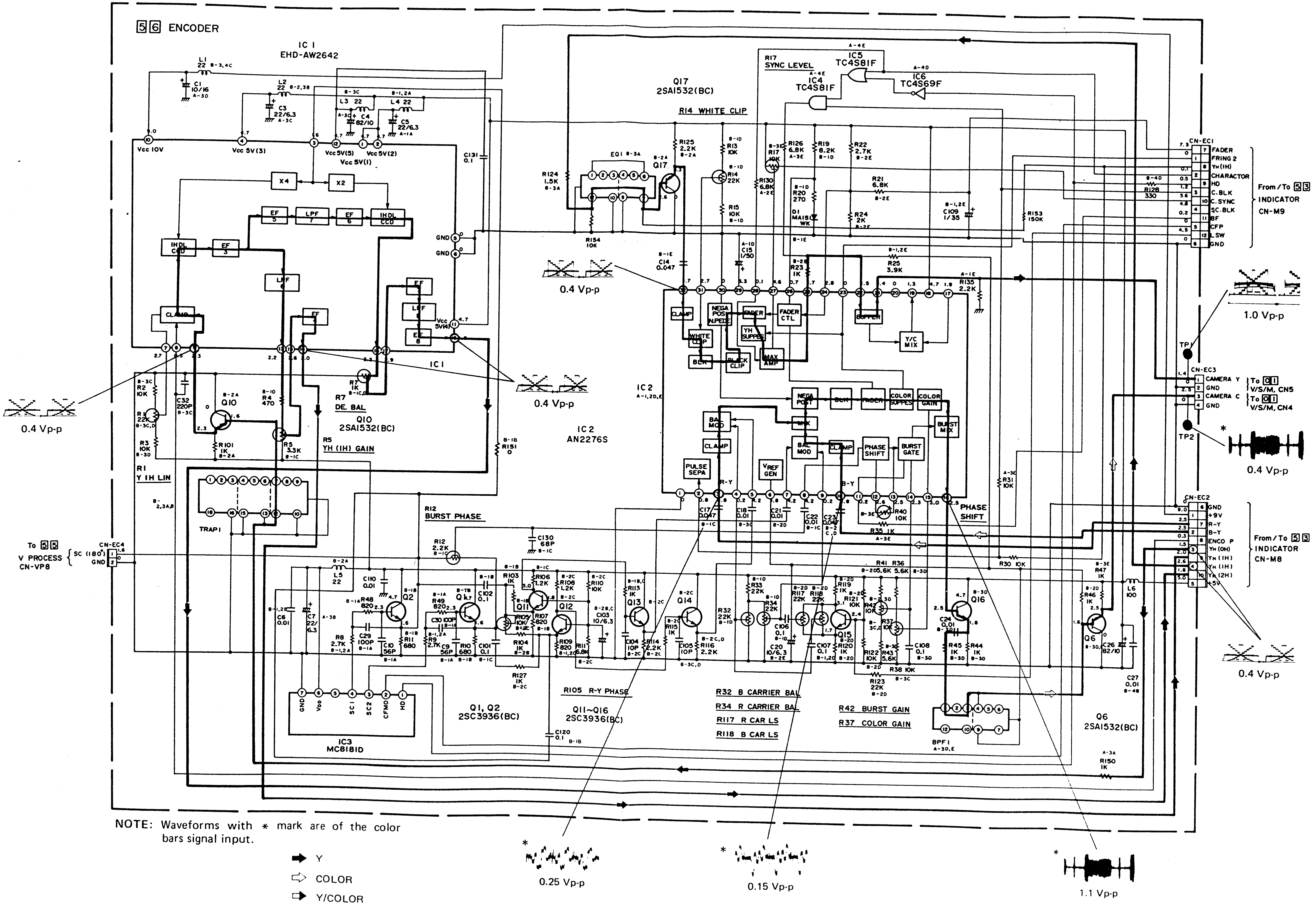

D
C
B
A
1
2
4
R16
R56
R75
C24
R61
Q17
R60
R62
Q18
C3
IC6
R26
CN-FA12
R20
R21
R23
R24
R22
R25
R5
R6
R3
R4
C27
CN-FA10
CN-FA11
Q1
C28
C2
L2
C10
C23
D2
R19
R17
Q4
5 4 FAW PWB ASS'Y
YB20010B-02-C
FAW PWB
YB20010-01-02
R40
R41
R42
R43
R30
R35
R74
Q6
Q5
R31
R29
R28
R15
CN-FA14
CN-FA13
CN-FA15

5.31 FAW SCHEMATIC DIAGRAM



5 4 FAW
IC 1
M5464IFP
Q1
2SB709Q
IC 2
M5223FP
Q3
DTC124EK
Q4
DTC124EK
IC 3
MN4081BS
IC 4
MN4071BS
IC 5
BU4053BF
FAST SLOW
CN-FA10
CN-FA11
Zoom M
CN-FA14
+8V
FL CTL
IN/OUT
WBO I
FAW/STD
MODE 2
S
WBO 2
IN/FL STD
GND
From/To
5 5
V PROCESS
CN-VP3
R3 12K
R5 4.7K
R6 1.2K
R4 5.6K
R10 10K
R11 4.7K
R12 680
R13 3.9K
R14 180
R15 220K
R16 47K
R17 22K
R18 22K
C1 4.7/4
C27 0.1
D1 MA151WA
D2 MA151WA
R19 56K
BINARY TO 1-OF-2 DEC With INH
LEVEL CONV
R20 27K
R23 27K
R21 47K
R24 4.7K
R22 6.8K
R25 6.8K
R21 INDOOR STD
R24 FL STD
IC 6
AMP
Q5
Q6
Q7
Q8
Q9
Q10
Q11
Q12
Q13
Q14
Q15
Q16
IC 7
D3
R30 5.6K
R32 2.2K
R37 22K
R39 4.7K
R40 10K
R65 47
R74 270K
R36 1.2K
R34 2.2K
R35 1.2K
R38 22K
C6 10/4
C7 4.7/4
R41 1K
R42 1K
R43 10K
R44 4.7K
R45 4.7K
C8 47/4
C9 0.1/35
R46 10K
C10 10/4
R47 4.7K
R48 6.8K
R49 1K
R50 1K
R52 1.2K
R53 22K
C23 33/10
R55 56K
R56 100K
C11 10/10
R58 27K
R59 6.8K
C2 6.8/6.3
R26 470K
C3 0.01
R27 5.6K
C4 10/6.3
C5 33/6.3
R28 2.2K
R29 2.2K
R31 2.2K
R33 5.6K
CN-FA12
AP CTL
VAP
YH
VAP CLIP
+2V
AW R GAIN
AGC
AW B GAIN
From/To
5 5
V PROCESS
CN-VP5
IC 6
AN608P
Q5
FMW1
Q6
2SA1037K(Q)
Q7
FMS1
Q8
2SC2404C
Q9
FMS1
Q10
2SC2413K(Q)
Q11
FMW1
Q12,Q13
2SC2413K(Q)
Q14
2SB709Q
Q15
2SJ84Q
Q16
2SJ84R
D3
MA151WK
IC 7
M5223FP
CN-FA15
+5V
FAW RESET
B-Y
R-Y
For TEST
R60 1.5K
R62 680
Q18
Q17
R61 18K
C24 0.1
R75 0
C25 22/16
C26 22/16
C28 33/16
L2 100
L1 22
CN-FA13
+9V
REG 9.5V
GND
R-Y
VD
B-Y
+5V
ENCO P
From
5 5
V PROCESS
CN-VP4
Q17
2SB709Q
Q18
2SD602(QR)

5.32 ENCODER SCHEMATIC DIAGRAM



56 ENCODER
IC 1
EHD-AW2642
L1 22
C1 10/16
L2 22
C3 22/6.3
L3 22
L4 22
C4 82/10
C5 22/6.3
Vcc 10V
Vcc 5V(3)
Vcc 5V(5)
Vcc 5V(2)
Vcc 5V(1)
C131 0.1
X4
X2
EF
LPF
EF
IHDL CCD
IHDL CCD
EF
LPF
EF
CLAMP
EF
LPF
EF
GND
GND
Vcc 5V(4)
IC 1
R2 10K
R1 22K
C32 220P
Q10
R4 470
R3 10K
R101 1K
R5 3.3K
R7 1K
R7 DE. BAL
Q10 2SA1532(BC)
R5 YH (IH) GAIN
R1 Y IH LIN
R151 0
TRAP1
0.4 Vp-p
0.4 Vp-p
0.4 Vp-p
To 55 V PROCESS CN-VP8
SC (180°)
GND
CN-EC4
R12 BURST PHASE
R12 2.2K
C130 68P
L5 22
C110 0.01
C6 0.01
C7 22/6.3
R48 820
Q2
R8 2.7K
C29 100P
C10 56P
R11 680
R49 820
Q1
C30 100P
R9 2.7K
C9 56P
R10 680
C102 0.1
C101 0.1
R103 1K
R106 1.2K
R108 1.2K
R110 10K
Q11
Q12
R107 820
R105 10K
R104 1K
R109 820
R111 6.8K
C103 10/6.3
R127 1K
Q13
Q14
R113 1K
C104 10P
R114 2.2K
R115 1K
C105 10P
R116 2.2K
R32 22K
R33 22K
R34 22K
C106 0.1
C20 10/6.3
R117 22K
R118 22K
R119 1K
R121 10K
R42 10K
Q15
C107 0.1
R120 1K
R37 10K
R122 10K
R43 5.6K
C108 0.1
R38 10K
R123 22K
R41 5.6K
R36 5.6K
Q16
C24 0.01
R45 1K
R44 1K
R47 1K
R46 1K
Q6
C26 82/10
L6 100
C27 0.01
R30 10K
IC3 MC8181D
GND Voo SC1 SC2 CFMO HD
Q1, Q2 2SC3936(BC)
R105 R-Y PHASE
Q11~Q16 2SC3936(BC)
C120 0.1
R32 B CARRIER BAL
R34 R CARRIER BAL
R117 R CAR LS
R118 B CAR LS
R42 BURST GAIN
R37 COLOR GAIN
BPF1
Q6 2SA1532(BC)
R150 1K
Q17 2SA1532(BC)
R14 WHITE CLIP
EQ1
R124 1.5K
R125 2.2K
R13 10K
R14 22K
R15 10K
R154 10K
C14 0.047
C15 1/50
R17 SYNC LEVEL
IC5 TC4S81F
IC4 TC4S81F
IC6 TC4S69F
R17 10K
R126 6.8K
R19 8.2K
R22 2.7K
R130 6.8K
R20 270
D1 MA151 WK
R21 6.8K
R24 2K
C109 1/35
R153 150K
R128 330
R23 1K
R25 3.9K
R135 2.2K
0.4 Vp-p
IC 2
IC 2 AN2276S
CLAMP
NEGA POS INPEDE
FADER
FADER CTL
WHITE CLIP
YH SUPPES
BLK
BLACK CLIP
MAX AMP
BUFFER
Y/C MIX
NEGA POST
BLK
FADER
COLOR SUPPES
COLOR GAIN
BAL MOD
MIX
BURST MIX
CLAMP
BAL MOD
CLAMP
PHASE SHIFT
BURST GATE
PULSE SEPA
VREF GEN
R-Y
B-Y
C17 0.047
C18 0.01
C21 0.01
C22 0.01
C23 0.047
R40 10K
R35 1K
R31 10K
PHASE SHIFT
CN-EC1
FADER
FRING 2
YH (IH)
CHARACTOR
HD
C.BLK
C.SYNC
SC.BLK
BF
CFP
L.SW
GND
From/To 53 INDICATOR CN-M9
1.0 Vp-p
TP1
CN-EC3
CAMERA Y
GND
CAMERA C
GND
To 01 V/S/M, CN5
To 01 V/S/M, CN4
TP2
0.4 Vp-p
CN-EC2
GND
+9V
R-Y
B-Y
ENCO P
YH (OH)
YH (IH)
YH (2H)
+5V
From/To 53 INDICATOR CN-M8
0.4 Vp-p
0.25 Vp-p
0.15 Vp-p
1.1 Vp-p

NOTE: Waveforms with * mark are of the color bars signal input.

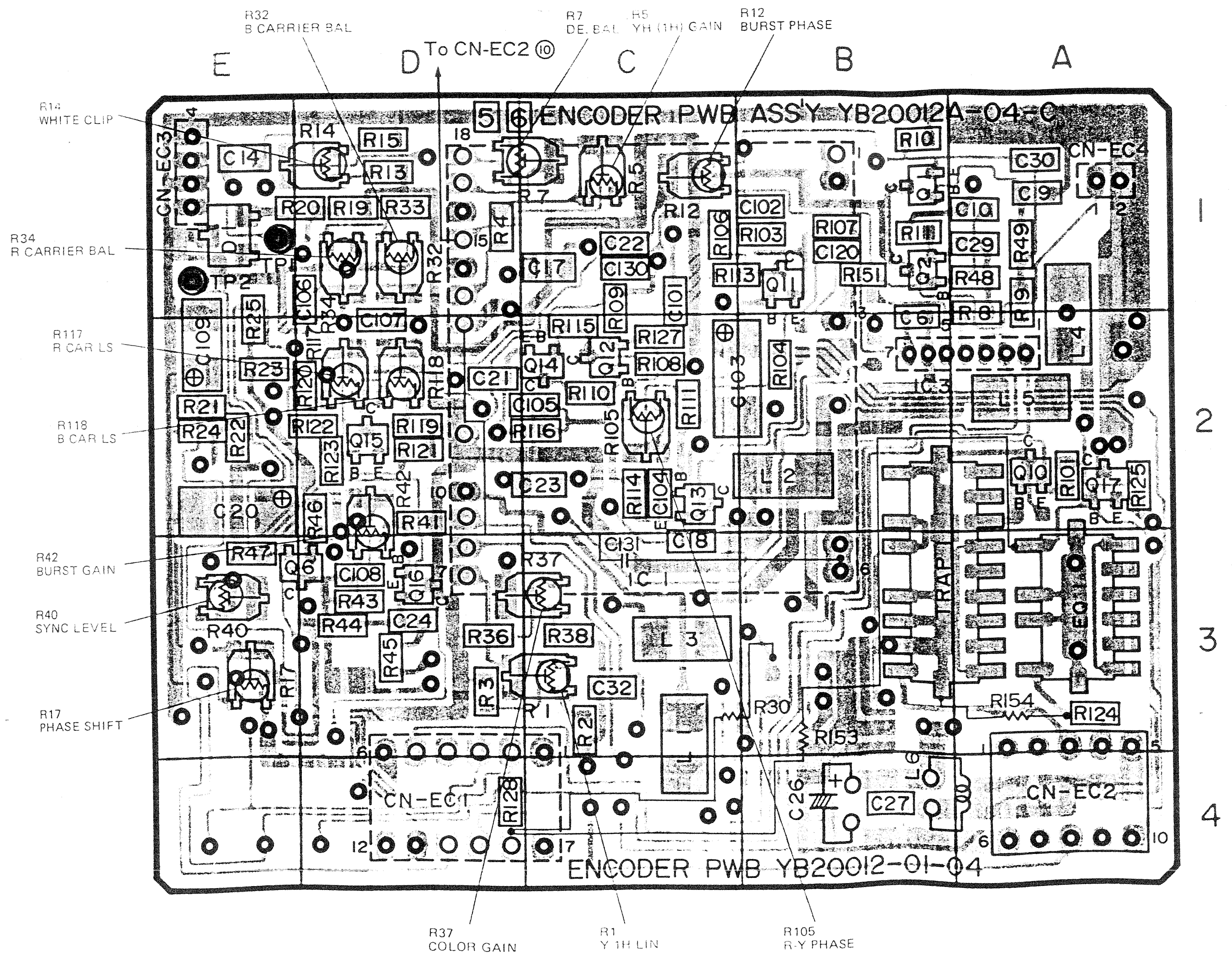
➡ Y

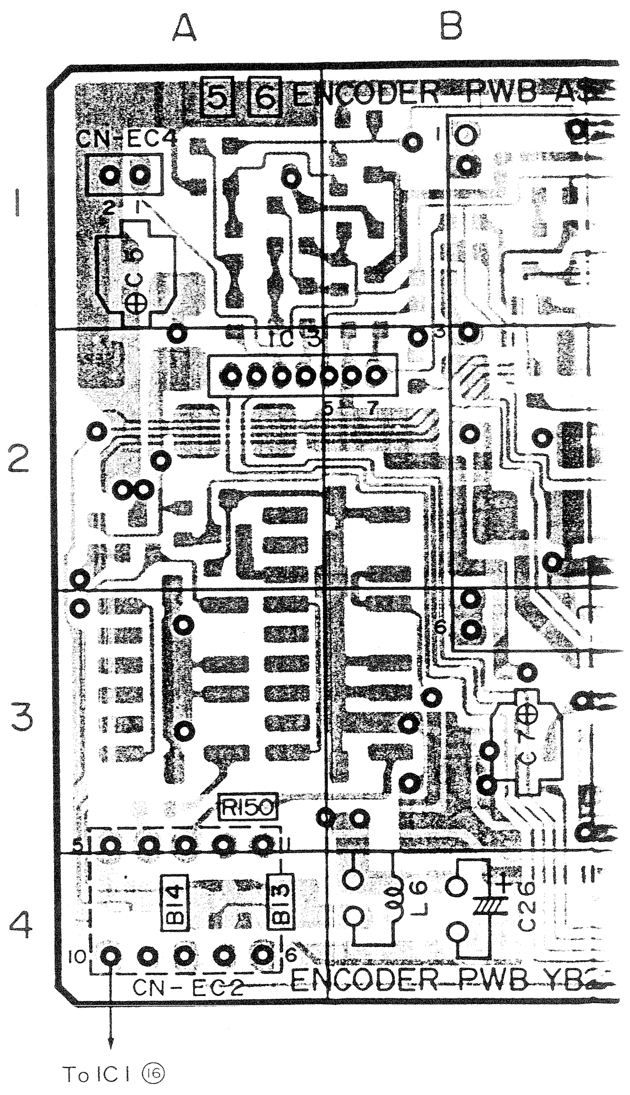
⇨ COLOR

➩ Y/COLOR

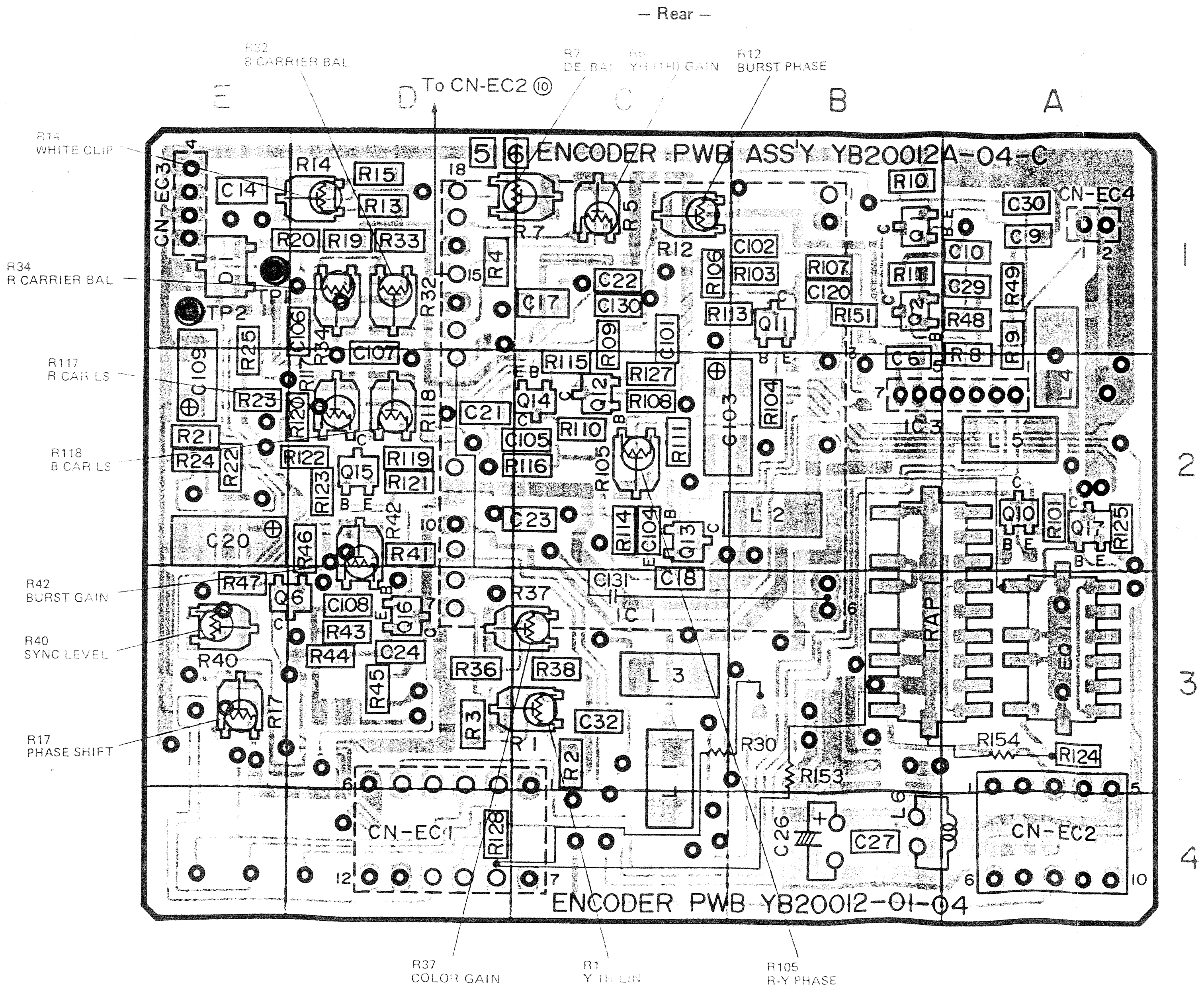
5.33 ENCODER CIRCUIT BOARD

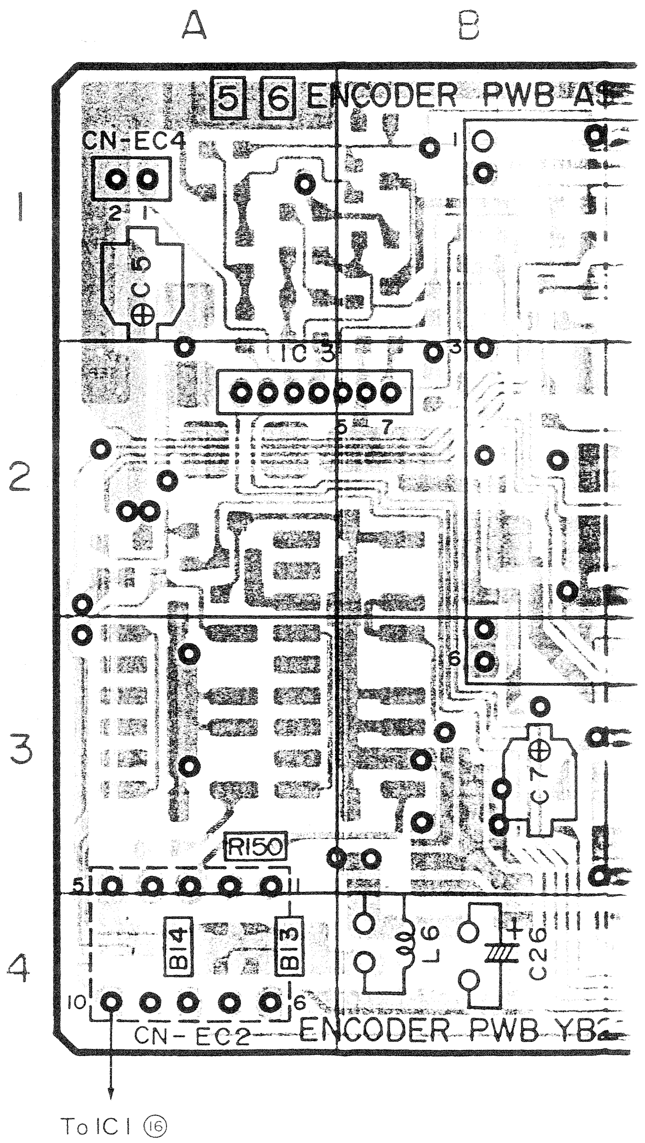
— Rear —


R32
B CARRIER BAL
To CN-EC2 ⑩
R7
DE. BAL
R5
YH (1H) GAIN
R12
BURST PHASE
E
D
C
B
A
R14
WHITE CLIP
R34
R CARRIER BAL
R117
R CAR LS
R118
B CAR LS
R42
BURST GAIN
R40
SYNC LEVEL
R17
PHASE SHIFT
5 6 ENCODER PWB ASSY YB20012A-04-C
CN-EC3
CN-EC4
CN-EC1
CN-EC2
TP1
TP2
IC3
ENCODER PWB YB20012-01-04
1
2
3
4
R37
COLOR GAIN
R1
Y 1H LIN
R105
R-Y PHASE

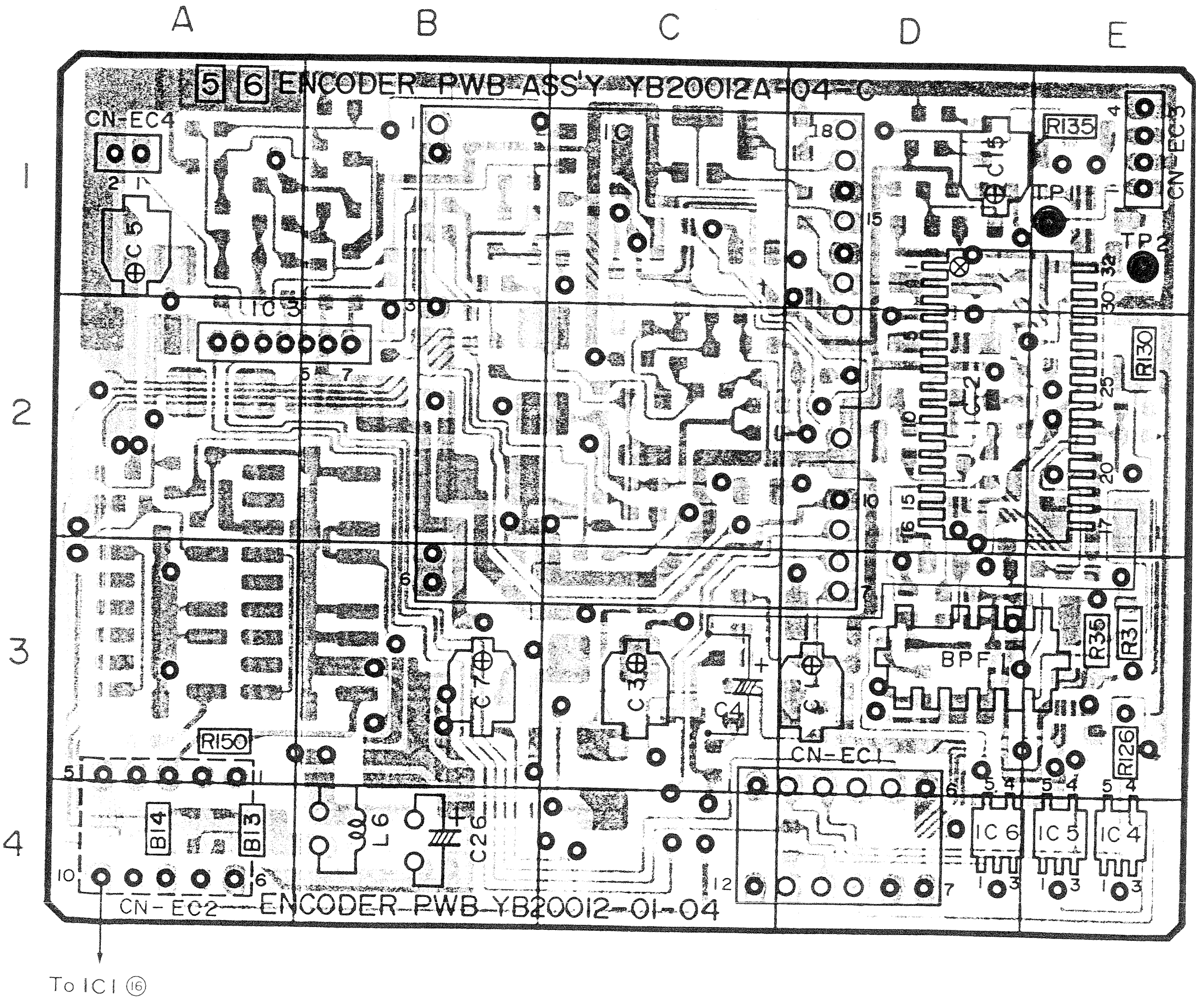

A
B
1
2
3
4
5 6 ENCODER PWB AS
CN-EC4
CN-EC2
ENCODER PWB YB
To IC1 ⑯

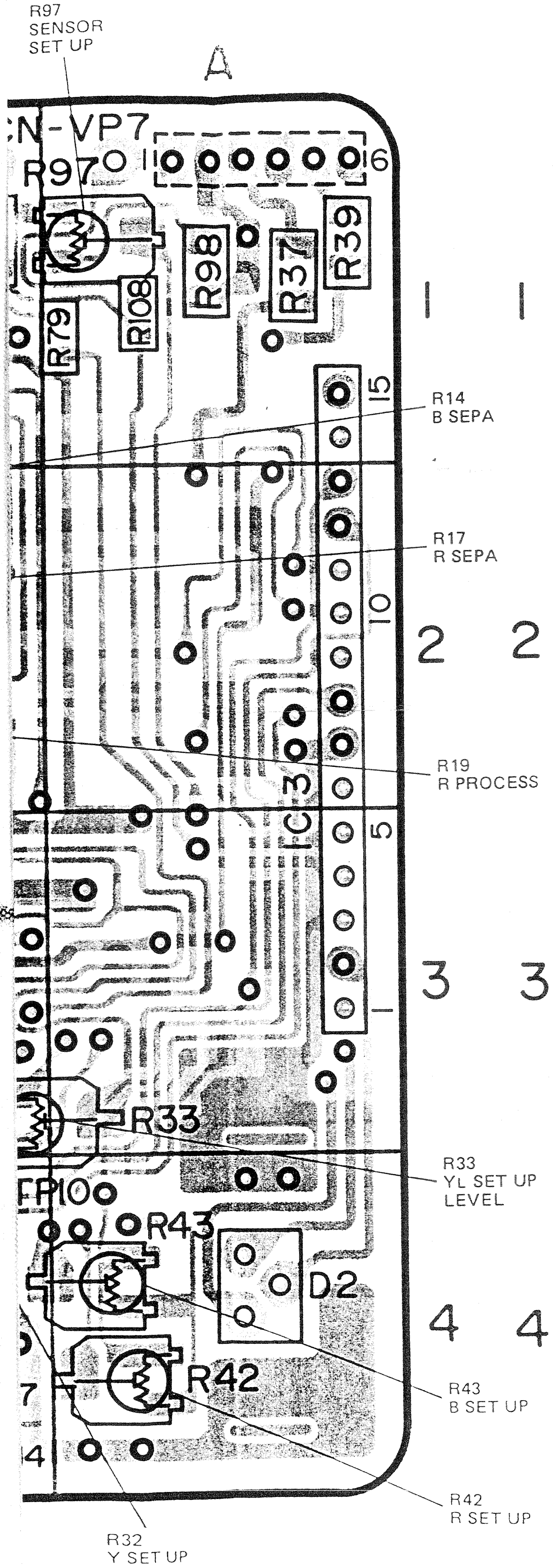
5.33 ENCODER CIRCUIT BOARD


– Rear –
R32
B CARRIER BAL
To CN-EC2 ⑩
R7
DE. BAL
R5
YH (1H) GAIN
R12
BURST PHASE
E
D
C
B
A
R14
WHITE CLIP
R34
R CARRIER BAL
R117
R CAR LS
R118
B CAR LS
R42
BURST GAIN
R40
SYNC LEVEL
R17
PHASE SHIFT
5 6 ENCODER PWB ASS'Y YB20012A-04-C
ENCODER PWB YB20012-01-04
CN-EC3
CN-EC4
CN-EC1
CN-EC2
TP1
TP2
IC 1
IC 3
TRAP
1
2
3
4
R37
COLOR GAIN
R1
Y 1H LIN
R105
R-Y PHASE

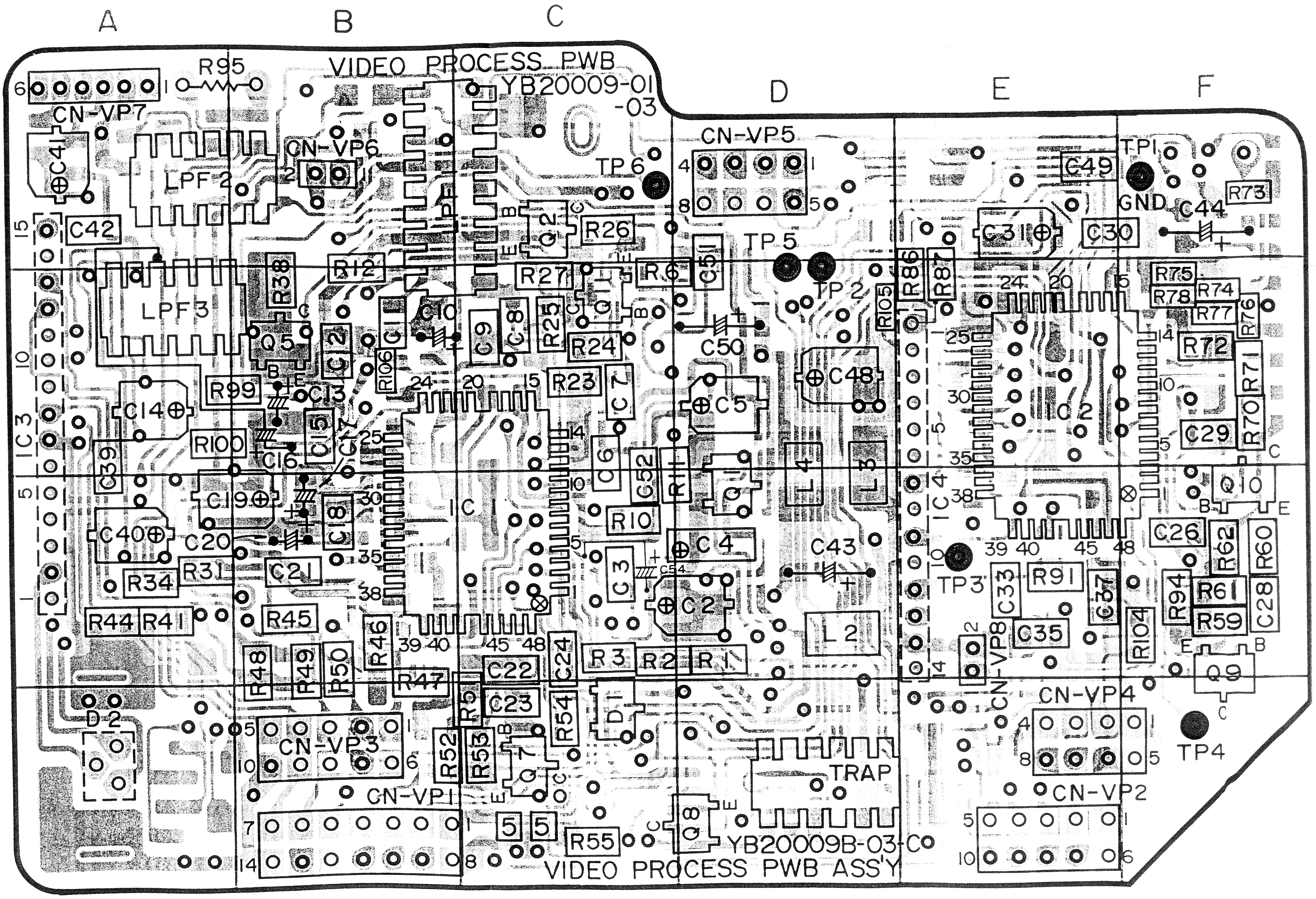

A
B
5 6 ENCODER PWB AS
CN-EC4
IC 3
C 5
C 7
R150
B14
B13
L6
C26
CN-EC2
ENCODER PWB YB
1
2
3
4
To IC1 ⑯

– Front –

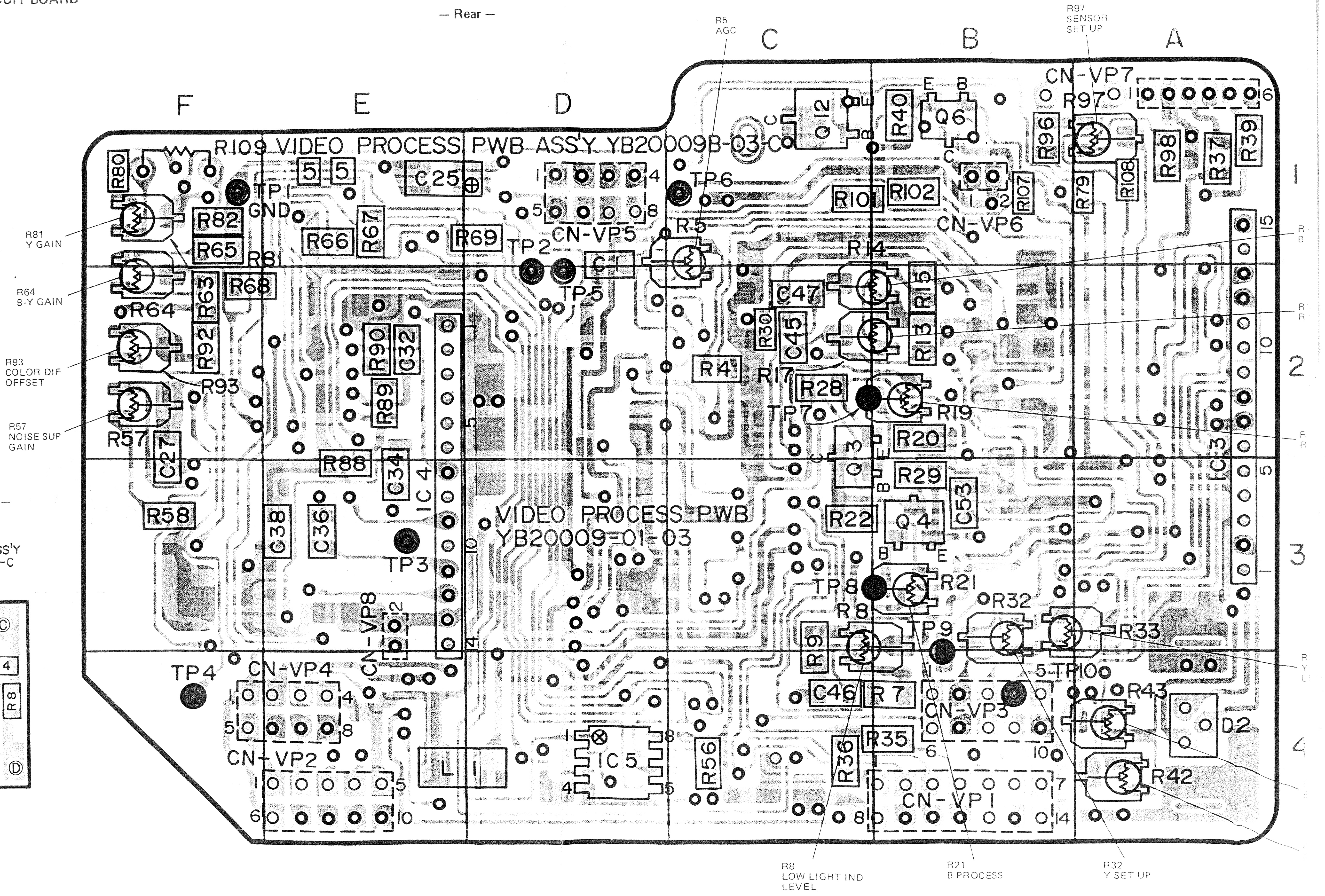

A
B
C
D
E
1
2
3
4
5 6 ENCODER PWB ASS'Y YB20012A-04-C
CN-EC4
C5
IC3
IC
IC2
C15
TP1
TP2
R135
CN-EC3
R130
BPF
R36
R31
R126
C7
C3
C4
C1
CN-EC1
R150
B14
B13
L6
C26
IC6
IC5
IC4
CN-EC2
ENCODER PWB YB20012-01-04
To IC1 ⑯


R97
SENSOR
SET UP
A
CN-VP7
R97
R98
R37
R39
R79
R108
1
2
3
4
15
10
5
IC3
R14
B SEPA
R17
R SEPA
R19
R PROCESS
R33
R33
YL SET UP
LEVEL
TP10
R43
D2
R42
R43
B SET UP
R42
R SET UP
R32
Y SET UP

— Front —

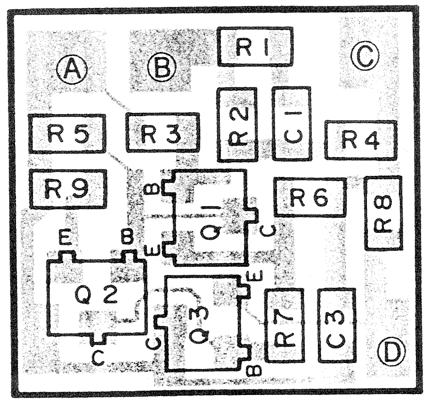

A
B
C
D
E
F
1
2
3
4
VIDEO PROCESS PWB
YB20009-01
-03
CN-VP7
R95
CN-VP6
LPF 2
LPF 3
C41
C42
IC3
C39
C40
C14
C19
C20
Q5
R38
R12
R99
R100
C13
C16
C12
C15
C17
C18
C21
R34
R31
R44
R41
R45
R46
R48
R49
R50
R47
C22
C23
C24
R51
R52
R53
R54
IC1
C11
C10
C9
C8
R25
R24
R23
C7
C6
C52
R11
R10
C3
C54
C2
C4
R27
R26
Q2
Q1
R6
C51
C50
C5
C48
TP6
TP5
TP2
CN-VP5
CN-VP3
CN-VP1
D1
D2
Q7
Q8
R55
TRAP
L4
L3
L2
C43
R3
R2
R1
YB20009B-03-C
VIDEO PROCESS PWB ASS'Y
R105
R86
R87
C31
C49
C30
TP1
GND
C44
R73
R75
R78
R74
R77
R76
R72
R71
R70
C29
IC2
IC4
Q10
C26
R62
R60
R94
R61
R59
C28
R91
C33
C37
C35
R104
TP3
CN-VP8
CN-VP4
CN-VP2
Q9
TP4

5.34 VIDEO PROCESS CIRCUIT BOARD

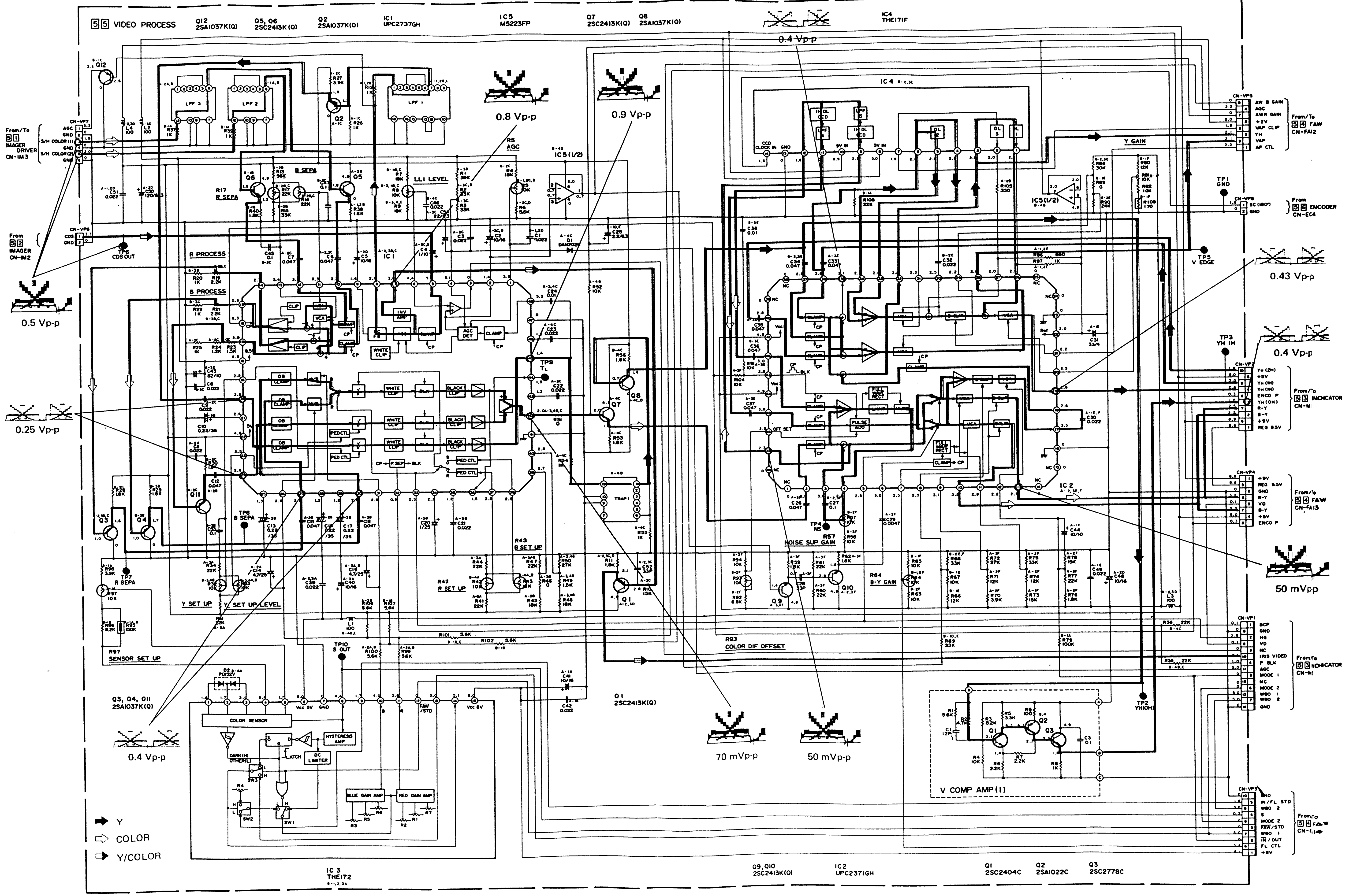

— Rear —
F
E
D
C
B
A
1
2
3
4
R5
AGC
R97
SENSOR
SET UP
R81
Y GAIN
R64
B-Y GAIN
R93
COLOR DIF
OFFSET
R57
NOISE SUP
GAIN
R8
LOW LIGHT IND
LEVEL
R21
B PROCESS
R32
Y SET UP
R109 VIDEO PROCESS PWB ASS'Y YB20009B-03-C
VIDEO PROCESS PWB
YB20009-01-03
TP1
GND
TP2
TP3
TP4
TP5
TP6
TP7
TP8
TP9
TP10
CN-VP1
CN-VP2
CN-VP3
CN-VP4
CN-VP5
CN-VP6
CN-VP7
CN-VP8
IC3
IC4
IC5
Q3
Q4
Q6
Q12
D2
L1
R4
R7
R8
R9
R13
R14
R15
R17
R19
R20
R21
R22
R28
R29
R30
R32
R33
R35
R36
R37
R39
R40
R42
R43
R56
R57
R58
R63
R64
R65
R66
R67
R68
R69
R79
R80
R81
R82
R88
R89
R90
R92
R93
R96
R97
R98
R101
R102
R107
R108
C1
C25
C27
C32
C34
C36
C38
C45
C46
C47
C53

— VIDEO COMP AMP (1) —

V. COMP AMP (1) PWB ASS'Y
YB20030A-C
V. COMP AMP (1) PWB
YB20030

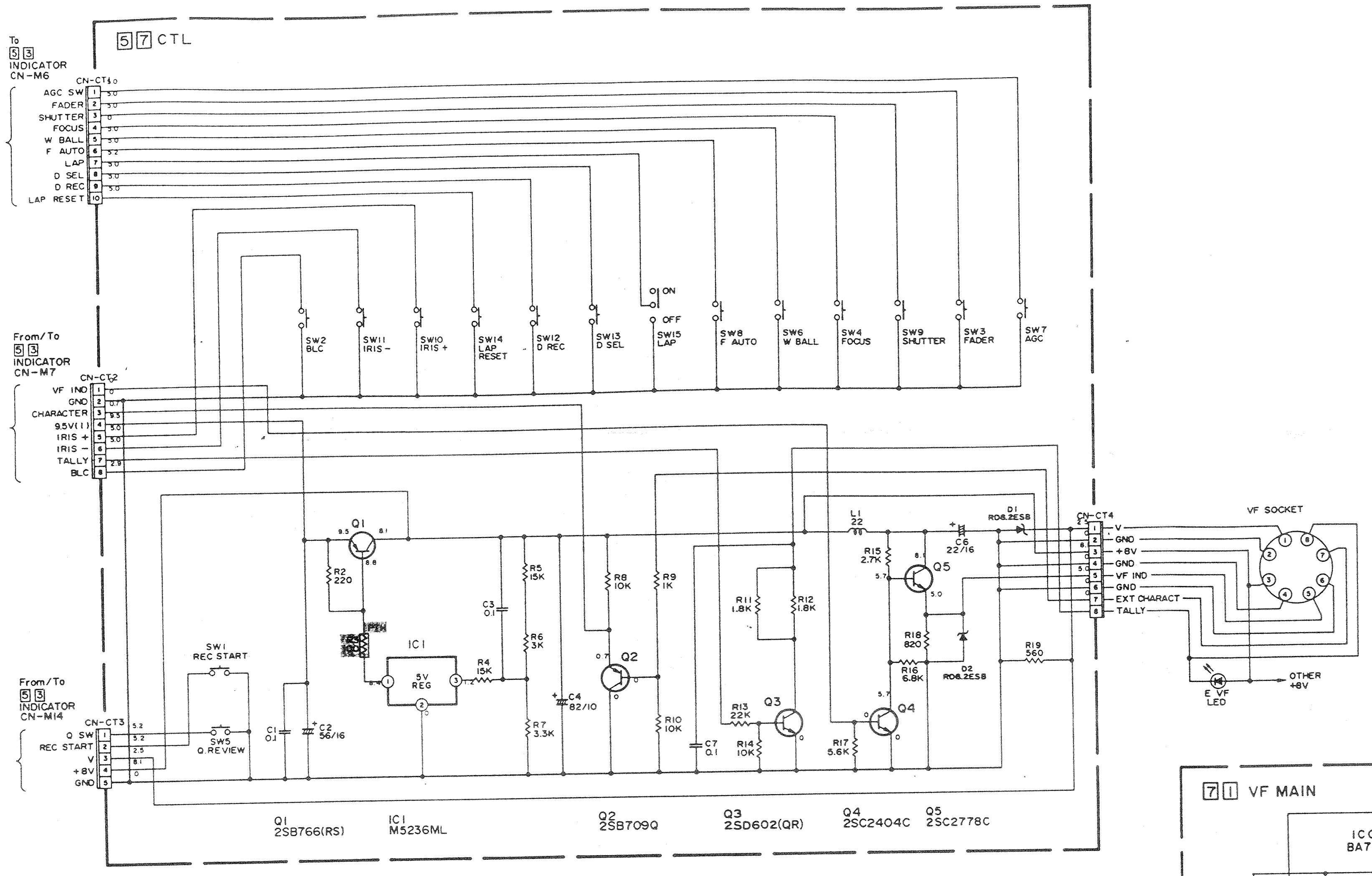

Ⓐ
Ⓑ
Ⓒ
Ⓓ
R1
R2
R3
R4
R5
R6
R7
R8
R9
C1
C3
Q1
Q2
Q3
E
B
C

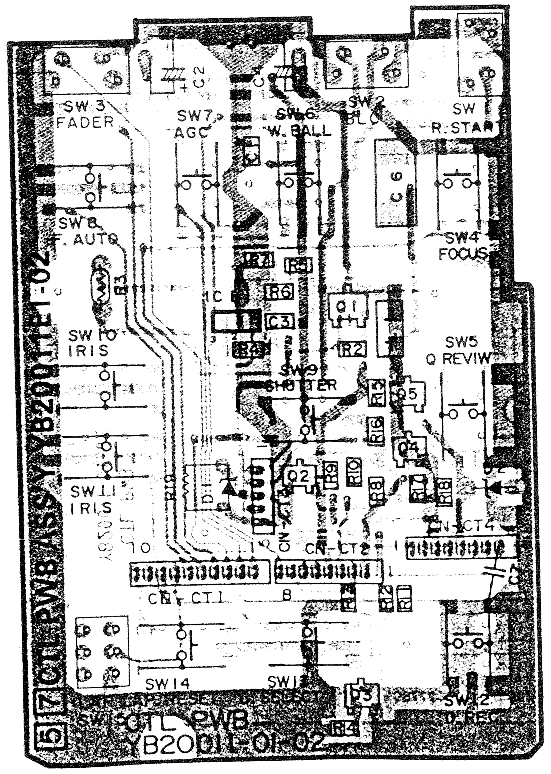
5.35 VIDEO PROCESS SCHEMATIC DIAGRAM



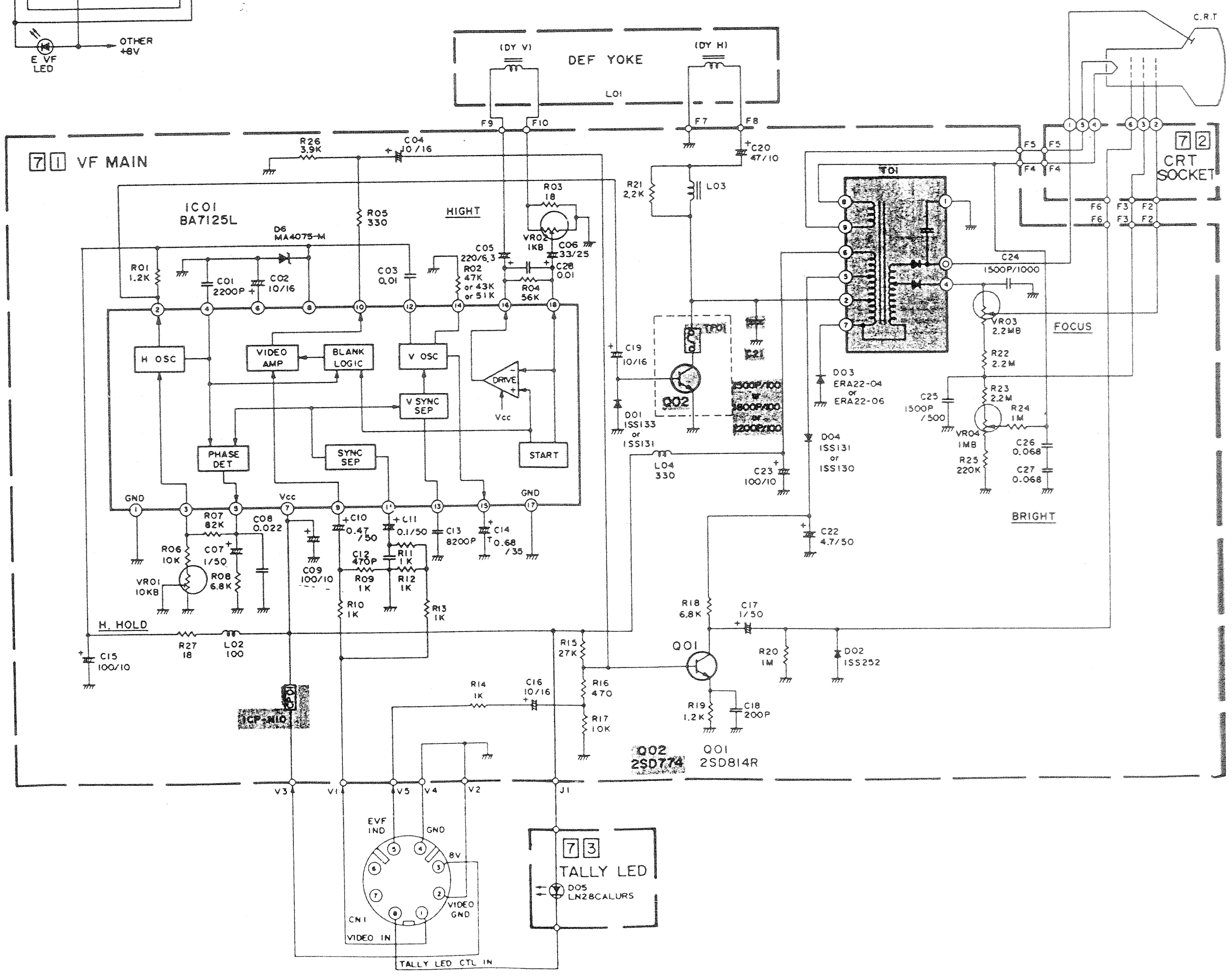
5 5 VIDEO PROCESS
Q12 2SA1037K(Q)
Q5, Q6 2SC2413K(Q)
Q2 2SA1037K(Q)
IC1 UPC2737GH
IC5 M5223FP
Q7 2SC2413K(Q)
Q8 2SA1037K(Q)
IC4 THE171F
0.4 Vp-p
0.8 Vp-p
0.9 Vp-p
R5 AGC
IC5 (1/2)
LPF 3
LPF 2
LPF 1
R SEPA
B SEPA
LL1 LEVEL
From/To 5 1 IMAGER DRIVER CN-IM3
AGC
GND
S/H COLOR (1)
GND
S/H COLOR (2)
GND
From 5 2 IMAGER CN-IM2
CDS
GND
TP6 CDS OUT
R PROCESS
B PROCESS
0.5 Vp-p
0.25 Vp-p
TP9 TL
IC4
CCD CLOCK IN
9V IN
5V IN
1H DL CCD
DL 2
DL 3
Y GAIN
IC5 (1/2)
TP1 GND
CN-VP5
AW B GAIN
AGC
AWR GAIN
+2V
VAP CLIP
YH
VAP
AP CTL
From/To 5 4 FAW CN-FA12
CN-VP8
SC (180°)
GND
From 5 8 ENCODER CN-EC4
TP5 V EDGE
0.43 Vp-p
TP3 YH 1H
0.4 Vp-p
CN-VP2
YH (2H)
+5V
YH (1H)
YH (1H)
ENCO P
YH (0H)
R-Y
B-Y
+9V
REG 9.5V
From/To 5 3 INDICATOR CN-M1
CN-VP4
+9V
REG 9.5V
GND
R-Y
VD
B-Y
+5V
ENCO P
From/To 5 4 FAW CN-FA13
50 mVpp
IC 2
TP4 NS
R57 NOISE SUP GAIN
R64 B-Y GAIN
TRAP 1
R43 B SET UP
R42 R SET UP
Y SET UP
Y SET UP LEVEL
TP7 R SEPA
TP8 B SEPA
R97 SENSOR SET UP
TP10 S OUT
R93 COLOR DIF OFFSET
Q1 2SC2413K(Q)
Q9, Q10 2SC2413K(Q)
IC2 UPC2371GH
Q1 2SC2404C
Q2 2SA1022C
Q3 2SC2778C
V COMP AMP (1)
TP2 YH(0H)
CN-VP1
BCP
GND
HG
VD
NC
IRIS VIDEO
P BLK
AGC
MODE 1
NC
MODE 2
WBO 2
WBO 1
GND
From/To 5 3 INDICATOR CN-M2
CN-VP3
GND
IN/FL STD
WBO 2
S
MODE 2
FAW/STD
WBO 1
IN/OUT
FL CTL
+8V
From/To 5 4 FAW CN-F14
70 mVp-p
50 mVp-p
0.4 Vp-p
Q3, Q4, Q11 2SA1037K(Q)
COLOR SENSOR
HYSTERESIS AMP
DC LIMITER
LATCH
DARK(H) OTHER(L)
SW1
SW2
SW3
BLUE GAIN AMP
RED GAIN AMP
Vcc 5V
GND
Vcc 8V
FAW /STD
IC 3 THE172
Y
COLOR
Y/COLOR

5.36 CONTROL SCHEMATIC DIAGRAM AND CIRCUIT BOARD


57 CTL
To 53 INDICATOR CN-M6
CN-CT1
AGC SW
FADER
SHUTTER
FOCUS
W BALL
F AUTO
LAP
D SEL
D REC
LAP RESET
SW2 BLC
SW11 IRIS-
SW10 IRIS+
SW14 LAP RESET
SW12 D REC
SW13 D SEL
ON
OFF
SW15 LAP
SW8 F AUTO
SW6 W BALL
SW4 FOCUS
SW9 SHUTTER
SW3 FADER
SW7 AGC
From/To 53 INDICATOR CN-M7
CN-CT2
VF IND
GND
CHARACTER
9.5V(1)
IRIS +
IRIS -
TALLY
BLC
From/To 53 INDICATOR CN-M14
CN-CT3
Q SW
REC START
V
+8V
GND
SW1 REC START
SW5 Q.REVIEW
C1 0.1
C2 56/16
Q1
R2 220
IC1
5V REG
R4 15K
R5 15K
R6 3K
C3 0.1
C4 82/10
R7 3.3K
Q2
R8 10K
R9 1K
R10 10K
C7 0.1
R11 1.8K
R12 1.8K
R13 22K
Q3
R14 10K
L1 22
R15 2.7K
Q5
R18 820
R16 6.8K
R17 5.6K
Q4
C6 22/16
D1 RD6.2ESB
D2 RD6.2ESB
R19 560
CN-CT4
V
GND
+8V
GND
VF IND
GND
EXT CHARACT
TALLY
VF SOCKET
E VF LED
OTHER +8V
Q1 2SB766(RS)
IC1 M5236ML
Q2 2SB709Q
Q3 2SD602(QR)
Q4 2SC2404C
Q5 2SC2778C

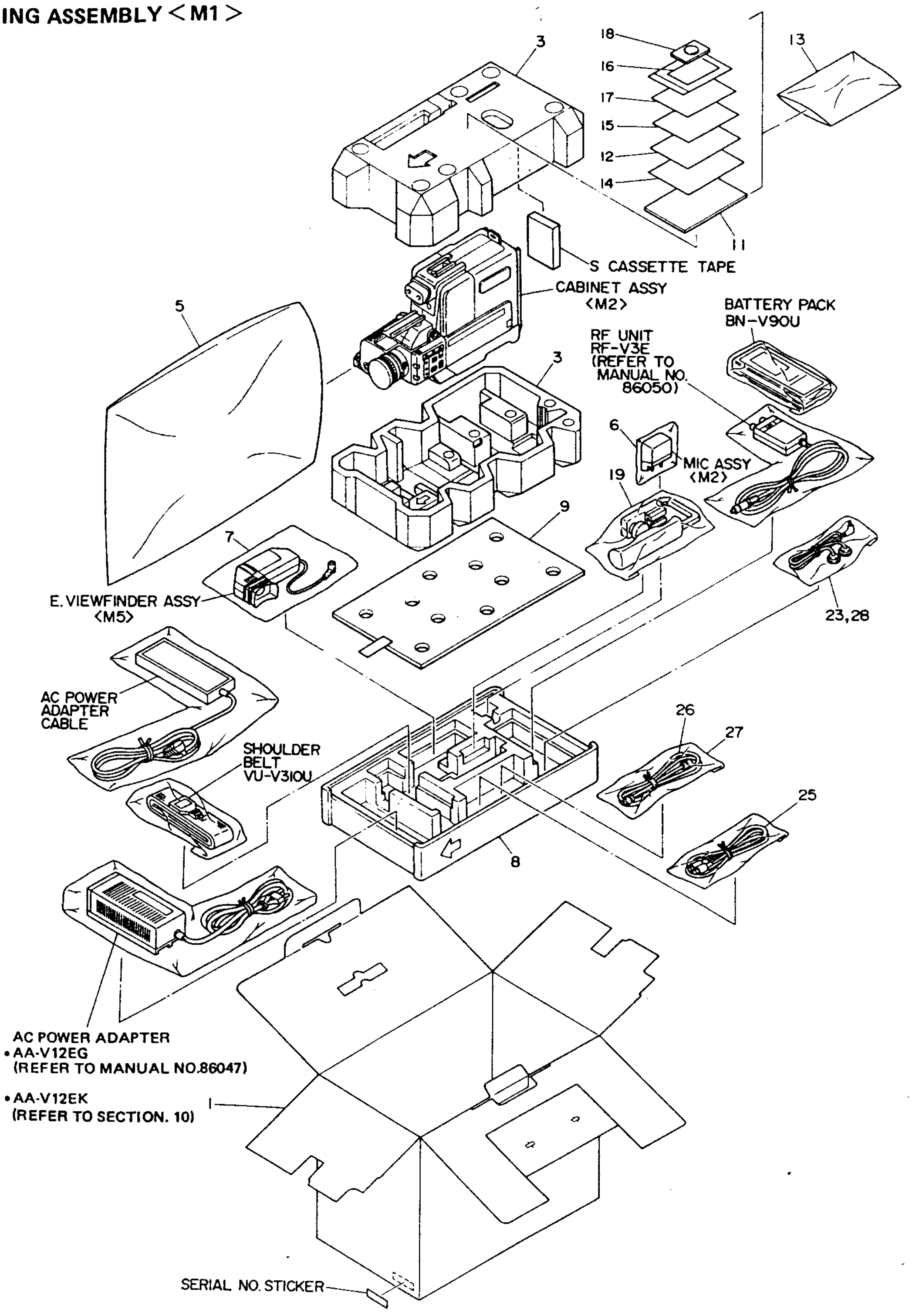

SW 3 FADER
SW7 AGC
SW6 W. BALL
SW2 BLC
SW R.START
SW8 F. AUTO
SW4 FOCUS
SW10 IRIS
SW9 SHUTTER
SW5 Q REVIW
SW11 IRIS
CN-CT1
CN-CT2
CT4
SW14
SW12 D.REC
57 CTL PWB ASSY YB2001L1-01-02
CTL PWB YB2001L-01-02

5.37 E. VIEWFINDER SCHEMATIC DIAGRAM


DEF YOKE
(DY V)
(DY H)
L01
C.R.T
72 CRT SOCKET
71 VF MAIN
IC01 BA7125L
H OSC
VIDEO AMP
BLANK LOGIC
V OSC
DRIVE
V SYNC SEP
PHASE DET
SYNC SEP
START
GND
Vcc
R26 3.9K
C04 10/16
R05 330
HIGHT
R03 18
VR02 1KB
C06 33/25
C26 0.01
C05 220/6.3
R02 47K or 43K or 51K
R04 56K
C03 0.01
R01 1.2K
C01 2200P
C02 10/16
D6 MA4075-M
R21 2.2K
L03
C20 47/10
T01
C24 1500P/1000
VR03 2.2MB
FOCUS
R22 2.2M
R23 2.2M
R24 1M
C25 1500P/500
VR04 1MB
R25 220K
C26 0.068
C27 0.068
BRIGHT
C19 10/16
Q02
D01 1SS133 or 1SS131
L04 330
D03 ERA22-04 or ERA22-06
D04 1SS131 or 1SS130
C23 100/10
C22 4.7/50
R07 82K
C08 0.022
R06 10K
C07 1/50
VR01 10KB
R08 6.8K
C09 100/10
C10 0.47/50
C11 0.1/50
C12 470P
C13 8200P
C14 0.68/35
R09 1K
R11 1K
R12 1K
R10 1K
R13 1K
H. HOLD
C15 100/10
R27 18
L02 100
R15 27K
R14 1K
C16 10/16
R16 470
R17 10K
R18 6.8K
C17 1/50
Q01
R20 1M
D02 1SS252
R19 1.2K
C18 200P
Q02 2SD774
Q01 2SD814R
V3 V1 V5 V4 V2 J1
EVF IND
GND
8V
VIDEO GND
CN1
VIDEO IN
TALLY LED CTL IN
73 TALLY LED
D05 LN28CALURS

5-30

6.2 PACKING ASSEMBLY < M1 >


3
18
16
17
15
12
14
11
13
S CASSETTE TAPE
CABINET ASSY <M2>
5
BATTERY PACK BN–V90U
RF UNIT RF-V3E (REFER TO MANUAL NO. 86050)
3
6
MIC ASSY <M2>
19
9
7
E. VIEWFINDER ASSY <M5>
23,28
AC POWER ADAPTER CABLE
26
27
SHOULDER BELT VU-V310U
25
8
AC POWER ADAPTER
•AA-V12EG
(REFER TO MANUAL NO.86047)
•AA-V12EK
(REFER TO SECTION. 10)
1
SERIAL NO. STICKER

```
*** ******************************************
*       1. PACKING ASSEMBLY <M1>             *
*** ******************************************
```

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	1	YQ30084-7	PACKING CASE,EK
		YU30256-3	PACKING CASE,EG
	3	YQ30085A-2	CUSHION ASSY
	5	YQM30021-8	POLY BAG(MOVIE)
	6	QPGA010-01503	POLY BAG(MIC)
	7	YQM30021-7	POLY BAG(E.VIEWFINDER)
	8	YQ20061-1-2	ACC.TRAY
	9	YQ30086	ACC.TRAY COVER
⚠	11	YU30052-51	INSTRUCTIONS,EK
⚠		YU30052-50-1	INSTRUCTIONS,EG
	12	TCN-3318	TAPE CATALOG
	13	QPGA025-03505	POLY BAG
		PQM30023-5	POLY BAG
	14	–	DBP INF SHEET, EG
	15	YU40406-11	MARKETING SHEET,EK
	16	BT-20060	GUARANTY CARD,EK
	17	BT-20066A	E.DISTRI.LIST,EK
⚠	18	YU40547	BATT.
	19	YQ10128B	CARRYING HANDLE
	23	PU59729	HEADPHONE
	25	YQ10120B	AV CABLE ASS'Y
	26	PU59167-3	CABLE ASSY
	27	QPGA015-02505	POLY BAG
	28	YU40034	EAR PAD

SECTION 6
EXPLODED VIEWS AND PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

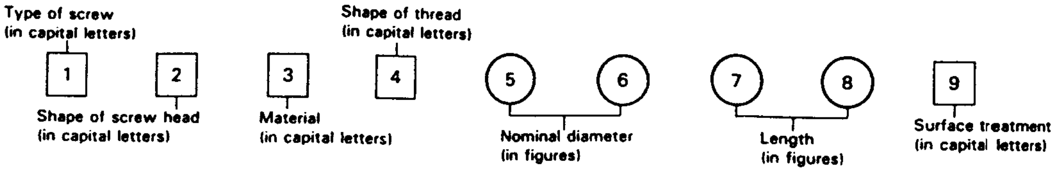
NOTE:

[M] indicates mechanical symbol number.

6.1 STANDARD PART NUMBER CODING

6.1.1 Screw coding

Standard screw part numbers are as follows.

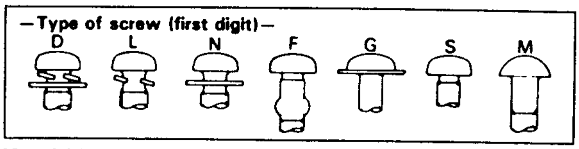

Type of screw
(in capital letters)
Shape of thread
(in capital letters)
1
2
3
4
5
6
7
8
9
Shape of screw head
(in capital letters)
Material
(in capital letters)
Nominal diameter
(in figures)
Length
(in figures)
Surface treatment
(in capital letters)

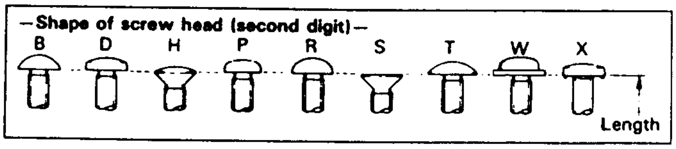
Type of screw (first digit)

S	Normal screws
D	Assembled machine screws (with plain and spring washers)
L	〃 (with spring washer)
N	〃 (with plain washer)
F	Feather screws
G	Washer head tapping screws
M	Wood screws

Shape of screw head (second digit)

B	Brazier head
D	Binding head
H	Oval countersunk head
P	Pan head
R	Round head
S	Flat head
T	Truss head
W	Washer head (machine screws)
X	Toothed head


—Type of screw (first digit)—

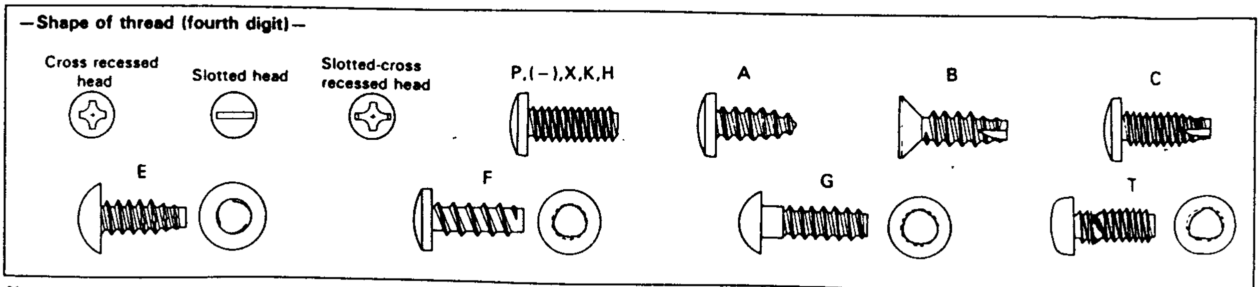

—Shape of screw head (second digit)—
B
D
H
P
R
S
T
W
X
Length

Material (third digit)

S	Steel
E	Stainless steel
C	Cast iron
U	Copper
B	Brass
P	Phosphor bronze
N	Nickel silver
Y	Cast brass
A	Aluminum
Z	Zinc alloy
K	Polycarbonate

Shape of thread (fourth digit)

P	Cross recessed head screws
(–)	Slotted head machine screws
X	Slotted-cross recessed head machine screws
K	Cross recessed head machine screws for precision equipment (type 1
H	〃 (type 3
A	Cross recessed head tapping screws (type 1)
B	〃 (type 2)
C	〃 (type 3)
E	Cross recessed head special tapping screws (brand : evertight)
F	〃 (brand : P-tight)
T	〃 (brand : taptight)
G	〃


—Shape of thread (fourth digit)—
Cross recessed head
Slotted head
Slotted-cross recessed head
P,(–),X,K,H
A
B
C
E
F
G
T

Nominal diameter (fifth and sixth digits)

The fifth and sixth digits indicate a nominal diameter or dimension. If the dimension exceeds 10 mm, three digits are used. The number indicates a nominal diameter or dimension, given in millimeters, multiplied by ten.

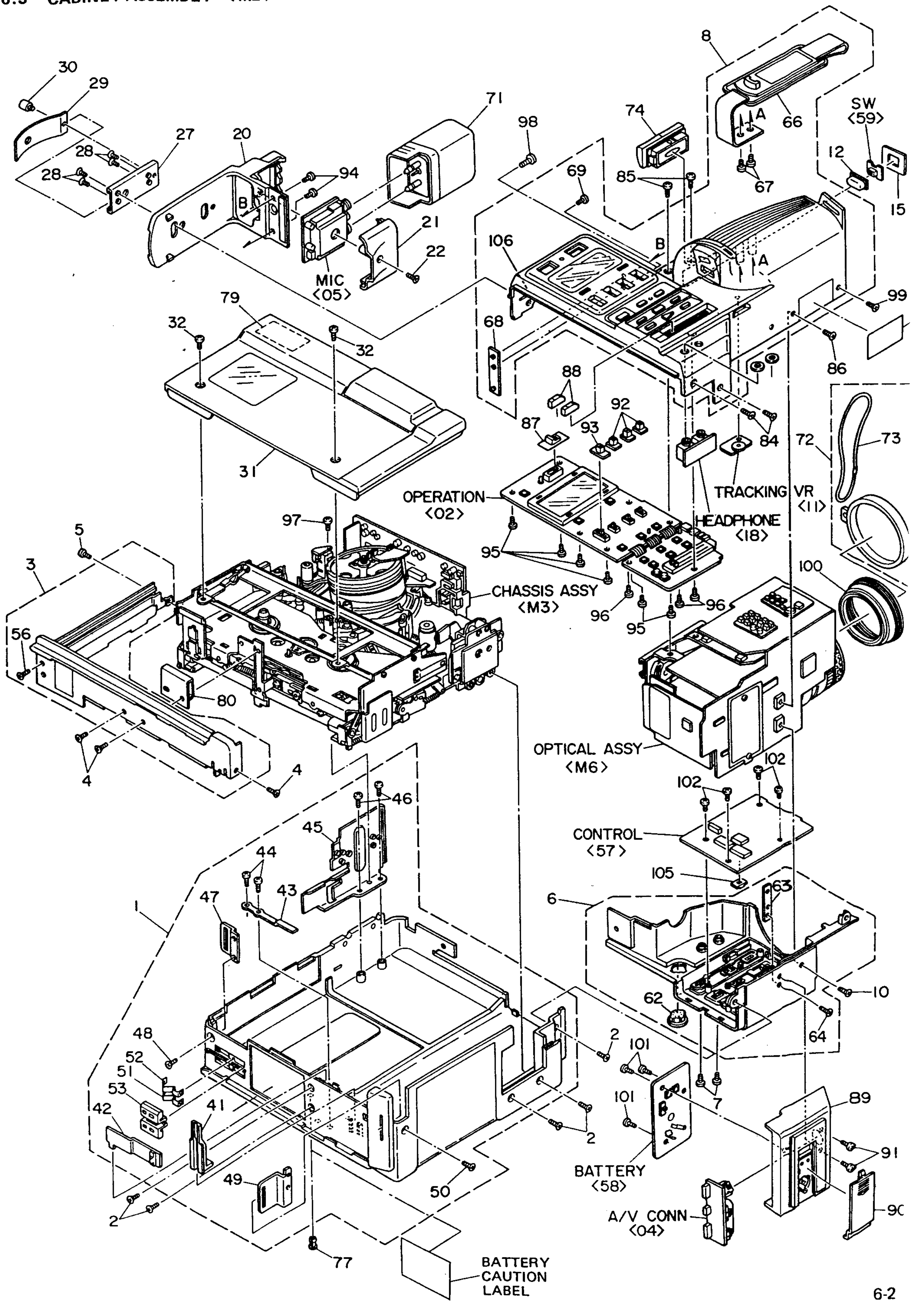
Length (seventh and eighth digits)

The seventh and eighth digits indicate length in millimeters. The preceding figure is zero when the dimension is smaller than 10 mm. For machine screws used in precision equipment whose length is given in units of 0.1 mm, the number indicates ten times the size of their length.

Surface treatment (ninth digit)

Z	Dichromate treatment after galvanizing (MFZn II-C)
N	Nickel plating (MFNiII, MFNiI)
R	Chromium plating (MBCrII, MBCrI)
G	Silver plating (SP4)
B	Black coating after plating
F	Blackening of iron (FB)
M	Blackening after galvanizing
K	Pickling of brass (PF2)
P	Phosphate treatment
W	Uni-chrome plating
L	Coated with transparent paint
A	Colored red after galvanizing (MFZnII-C)
C	Colored blue after galvanizing (MFZzII-C)
T	Colored green after galvanizing (MFZnII-C)
V	Colored purple after galvanizing (MFZnII-C)

6.3 CABINET ASSEMBLY <M2>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29
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27
28
20
B
94
71
MIC
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69
74
85
8
66
A
67
SW
<59>
12
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106
B
A
99
86
68
88
92
87
93
84
72
73
TRACKING VR
<11>
HEADPHONE
<18>
OPERATION
<02>
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56
4
4
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CHASSIS ASSY
<M3>
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96
95
100
OPTICAL ASSY
<M6>
102
102
CONTROL
<57>
105
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6
46
45
44
43
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1
10
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101
101
7
89
2
BATTERY
<58>
91
90
49
50
2
A/V CONN
<04>
77
BATTERY
CAUTION
LABEL

2. CABINET ASSEMBLY <M2>

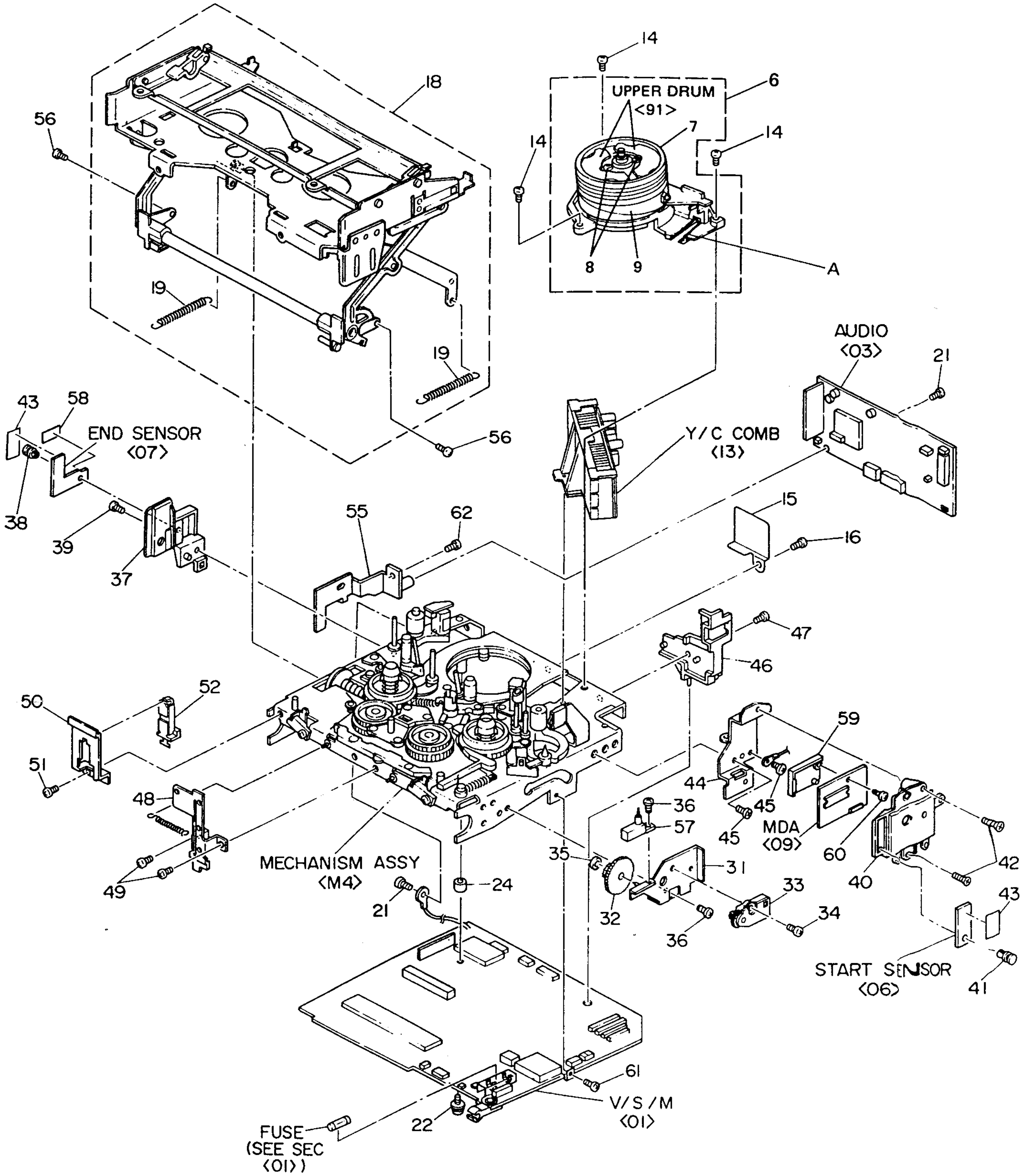
*,⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
⚠	1	PQ10438J-18	LOWER CASE ASSY,INCL.41-53
	2	SSSP2606D	SCREW,X5
	3	PQ10450G	BATT.GUIDE ASSY,INCL.56
	4	SSSP2606D	SCREW,X3
	5	SDSP2604Z	SCREW
	6	YQ10028F-3	COTROL PANEL ASSY,INCL.62-64
	7	SDSP2606D	SCREW,X2
⚠	8	YQ10030F-9	GRIP CASE ASSY, INCL. 66–69, 106
	10	SSSF2606D	SCREW
	12	PQ42714-1-2	TRIGER BUTTON
	15	PQ43112-1-1	COVER
⚠	20	YQ20049-2	TOP PANEL
	21	PQ42705-1-3	MIC COVER
	22	SPSG2618D	SCREW
	27	PQ42731-1-2	SHOE
	28	SSSP2608D	SCREW,X4
	29	PQ42722	SHOE CLIP
	30	PU53946-2-1	SHOE SCREW
⚠	31	YQ30230H	CASSETTE C.ASSY
	32	SDSP2606D	SCREW,X2
	41	PQ42711-1-2	SLIDER
	42	PQ42704A-1	BATT.LOCK ASSY
	43	PQ42846-1-1	SPRING
	44	SBSP2606Z	TAPPING SCREW,X2
	45	PQ31577-1-1	SHOE BRACKET
	46	SBSP2606Z	TAPPING SCREW,X2
	47	PQ42717-1-2	HOLDER(U)
	48	SSSP2606D	SCREW
	49	PQ42719-1-1	HOLDER(L)
	50	SSSP2606D	SCREW
	51	PQ42726-1-2	BATTERY TERMINAL
	52	PQ42726-2-2	BATTERY TERMINAL
	53	PQ31568-1-4	TERMINAL COVER
	56	SSSP2606D	SCREW
	62	PU52037	VF SOCKET
	63	YQ40303	BRACKET(L)
	64	SSSP2604Z	SCREW
	66	YQ20071-2	GRIP BELT
	67	SBSF2606Z	SCREW,X2
	68	YQ40319	BRACKET(U)
	69	SPSP2606Z	SCREW
	71	PU59731-1-1	MICROPHONE ASSY
	72	YU30125A-1	HOOD CAP ASSY,INCL.73
	73	YQ40299-1-3	STRING
	74	YU40147	ZOOM SWITCH ASSY
	77	YQ40537	VMP CUP
	79	PQ43093	SHIELD 2
	80	PQ43104-1-1	GUIDE BRACKET
	84	SSSP2606D	SCREW,X2
	85	SDSP2606D	SCREW,X2
	86	SSSF2606D	SCREW
	87	YQ40305-2	BUTTON(POWER)
	88	PQ42700-1-1	SLIDE KNOB,X2
	89	YQ20047B-3	BATTERY CASE ASSY
	90	YQ40324-1-4	BATT.COVER
	91	SDSP2606D	SCREW,X2
	92	YQ40321-1-2	KNOB(A),X3
	93	YQ40322	KNOB(B)
	94	SDSP2608D	SCREW,X2
	95	SDSF2004R	TAPPING SCREW,X6
	96	SDSF2006Z	TAPPING SCREW,X3
	97	LPSP2604Z	SCREW
	98	SDSP2606Z	SCREW
	99	SSSF2606Z	SCREW
	100	YQ40461	HOOD
	101	SDSF2004Z	TAPPING SCREW,X3
	102	SBSF2606Z	SCREW,X4
	105	YQ40304	KNOB(LAP)
	106	YU30159	SHIELD PLATE

ATING
ABEL

3. CHASSIS ASSEMBLY <M3>

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
⚠	6	PDV2164A	DRUM ASSY
	7	PDM2083F	UPPER DRUM ASSY
	8	PDM4165A	DRUM SCREW ASSY,X2
	9	PDM2121A-1	LOWER DRUM MOTOR ASSY
	14	SDSP2606Z	SCREW,X3
	15	PQ42912-1-1	DRUM SHIELD
	16	SDSP2604Z	SCREW
	18	PUS37191C-1	CASS.HOUSING AY,INCL.19
	19	PQM30001-219	TENSION SPRING,X2
	21	SDSP2604Z	SCREW,X2
	22	YQ40894	SPECIAL SCREW
	24	YQ40470	SPACER
	31	YQ40296A	DAMPER BRACKET ASSEMBLY
	32	YQ40298	DAMPER GEAR
	33	PU56781	DAMPER
	34	SDSP2006Z	SCREW
	35	PQM30017-23	SLIT WASHER
	36	SDSP2604Z	SCREW,X2
	37	PQ31599-1-3	END.S.BRACKET
	38	PU56800	NYLON RIVET
	39	SDSP2604Z	SCREW
	40	PQ31566B-4	BASE
	41	PU56800	NYLON RIVET
	42	SSSP2612Z	SCREW,X2
	43	PQ41253	SHEET,X2
	44	PQ31600-1-4	CAMERA BASE BRACKET
	45	SDSP2604Z	SCREW,X2
	46	YQ30329	A.PWB HOLDER
	47	SDSP2604Z	SCREW
	48	PQ31602-1-8	MAINDECK HOLDER
	49	SDSP2604Z	SCREW,X2
	50	PQ31603	REC.SENSOR.HOLDER
	51	SDSP2604Z	SCREW
	52	PU56571	LEAF SWITCH
	55	PQ42918A-2	AUDIO BOARD BRACKET ASSY
	56	SDSP2604Z	SCREW,X2
	57	YU40148	CASSETTE SWITCH
	58	PU59977	SHIELD PLATE
	59	YQ30062-1-1	MDA HOLDER
	60	SDSP2608D	SCREW
	61	PQ41450	SCREW
	62	SDSP2604Z	SCREW

6.4 CHASSIS ASSEMBLY < M3 >



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6
UPPER DRUM
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AUDIO
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END SENSOR
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Y/C COMB
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MECHANISM ASSY
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START SENSOR
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V/S/M
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FUSE
(SEE SEC
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Note:
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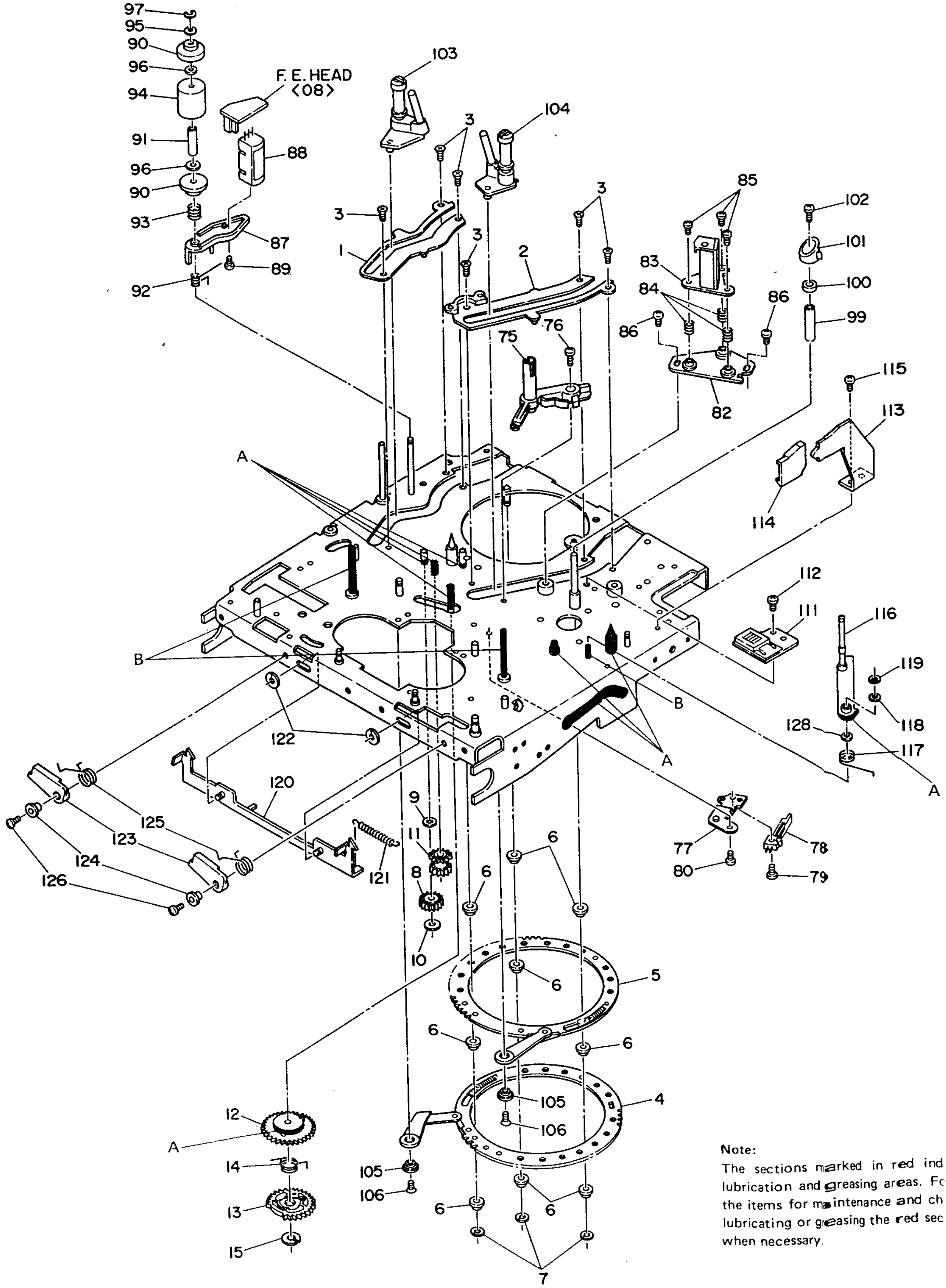
6.5 MECHANISM ASSEMBLY <M4>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F. E. HEAD
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101
100
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114
A
B
112
111
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119
118
128
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A
B
A
122
120
125
123
124
126
9
11
121
8
10
6
6
6
77
78
80
79
5
6
6
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105
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106
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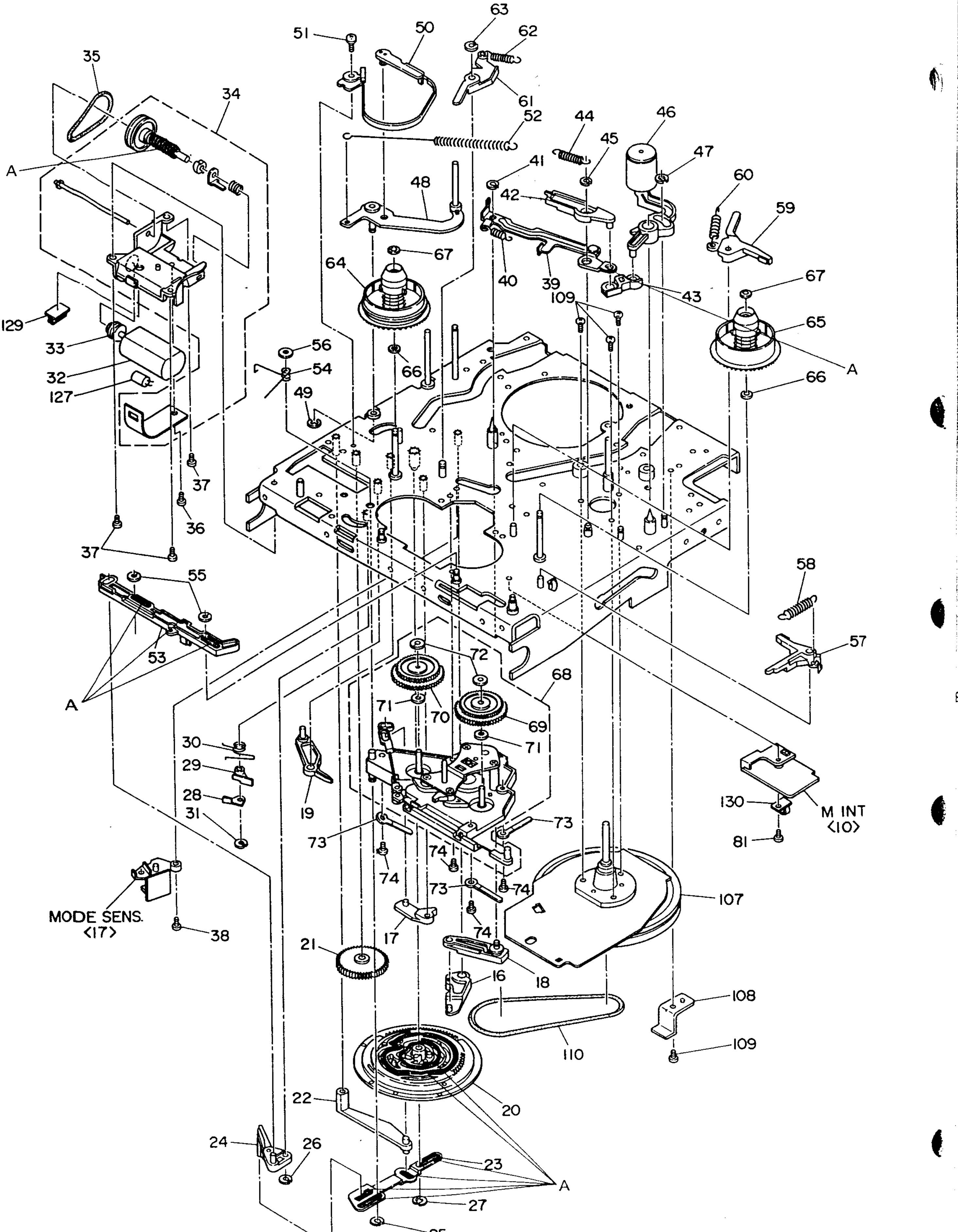
13
15
105
106
6
6
7

Note:
The sections marked in red ind
lubrication and greasing areas. Fc
the items for maintenance and ch
lubricating or greasing the red sec
when necessary.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A
A
M INT
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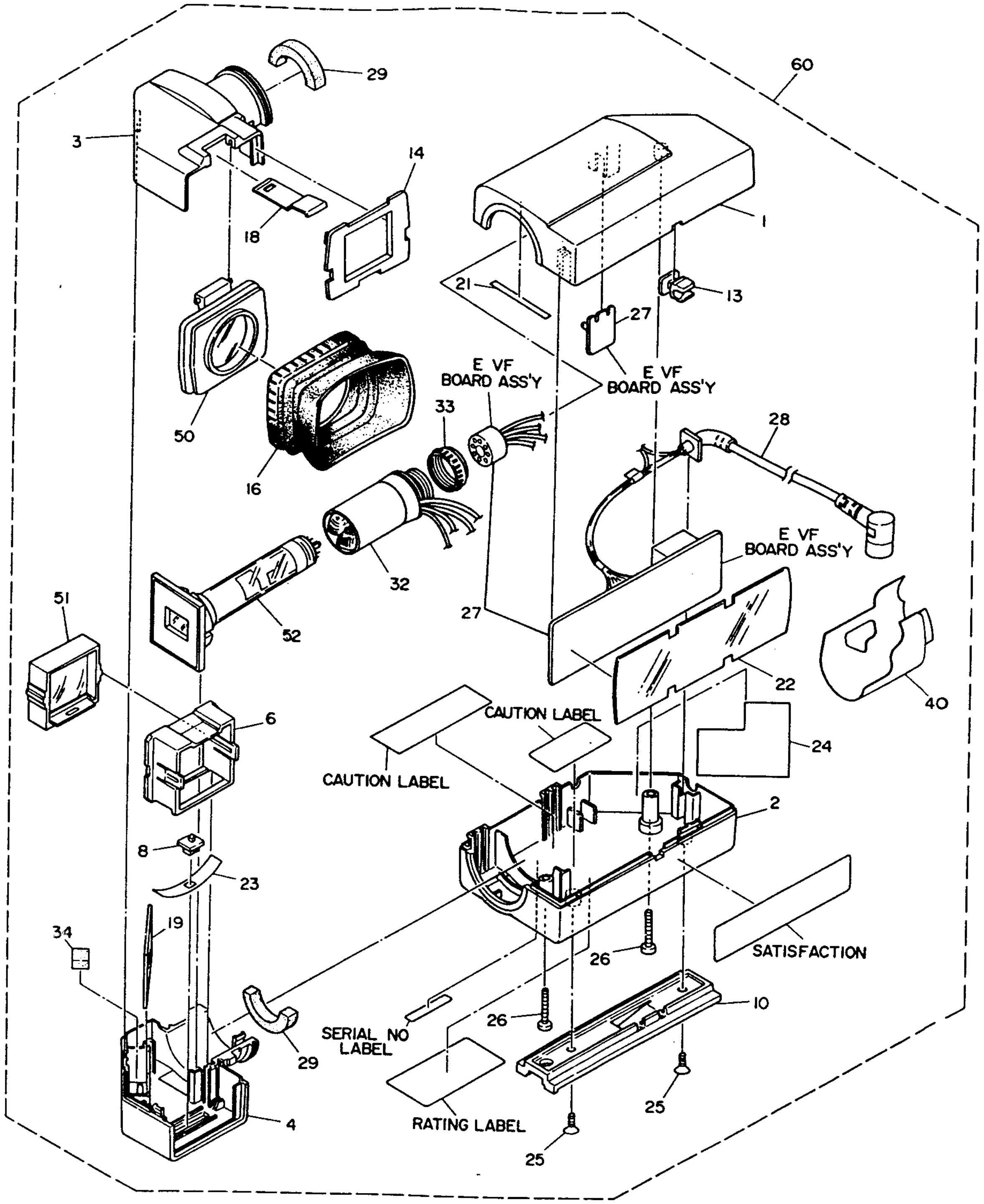
MODE SENS.
<17>
A

4. MECHANISM ASSEMBLY <M4>

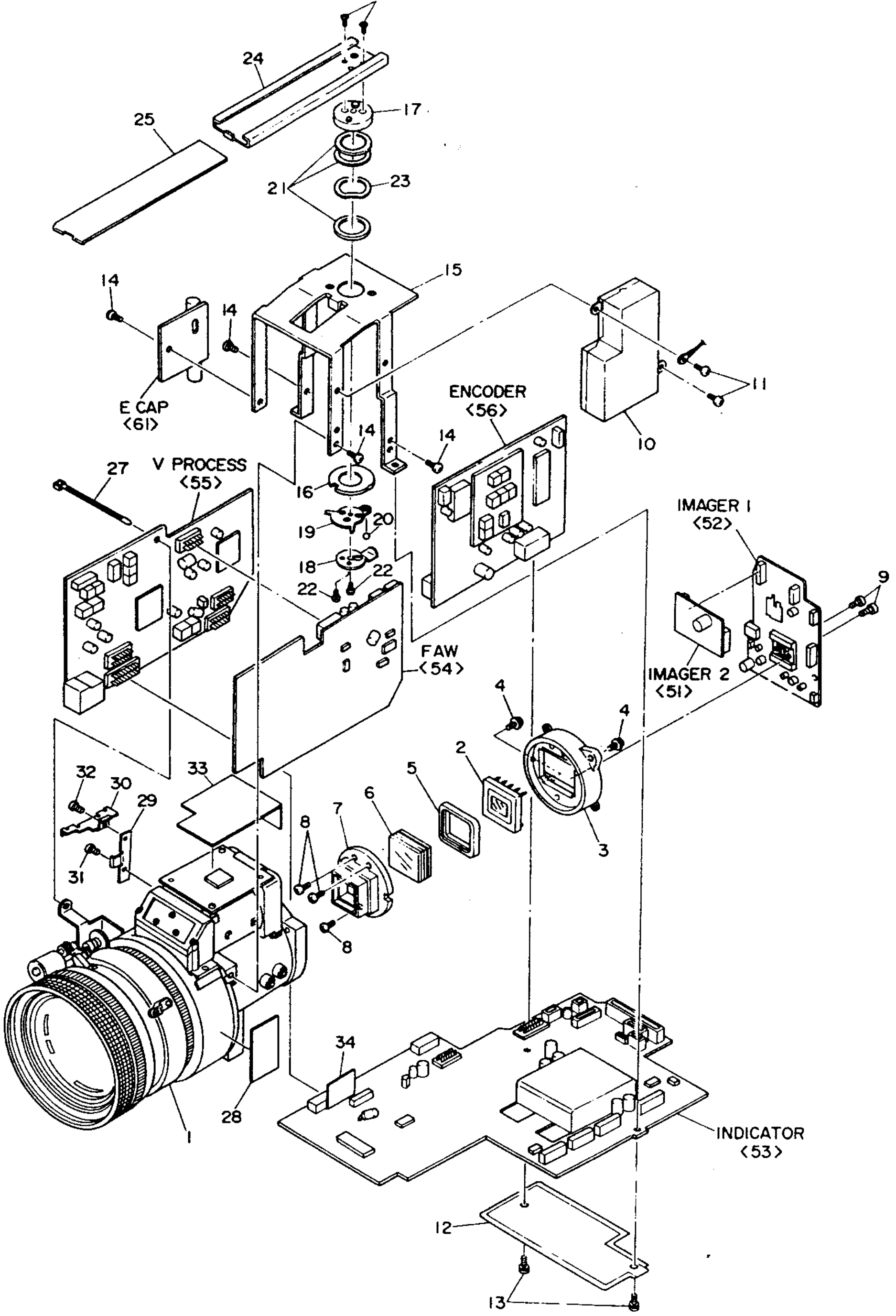
#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	1	PQ31595	GUIDE RAIL(S)
	2	PQ31596	GUIDE RAIL(T)
	3	PQ41269-2	SPECIAL SCREW,X6
	4	PQ42781A	LOADING RING ASSY(S)
	5	PQ42784A	LOADING RING ASSY(T)
	6	PQ42786	GUIDE ROLLER,X9
	7	PQM30017-22	SLIT WASHER,X3
	8	PQ40822	CONNECT GEAR(1)
	9	Q03093-817	WASHER
	10	PQM30017-24	SLIT WASHER
	11	PQ40823	CONNECT GEAR(2)
	12	PQ31597	LOADING GEAR(1)
	13	PQ30337	LOADING GEAR(2)
	14	PQ41069	TORSION SPRING
	15	PQM30017-18	SLIT WASHER
	16	PQ42787	CAM LEVER(1)
	17	PQ40827	CAM LEVER(2)
	18	PQ42788A	RELAY ARM ASSEMBLY
	19	PQ40831A-1	CANCEL LEVER ASSEMBLY
	20	PQ20235	CONTROL CAM
	21	PQ40833	WORM WHEEL GEAR
	22	PQ40834A	CANCEL LEVER(3) ASSEMBLY
	23	PQ40836-1-2	SLIDE PLATE
	24	PQ40837A-3	RELAY LEVER ASSEMBLY
	25	PQM30017-22	SLIT WASHER
	26	PQM30017-23	SLIT WASHER
	27	REE2500	"E" RING
	28	PQ41225-1-2	CAM BRAKE(1)
	29	PQ41226	CAM BRAKE(2)
	30	PQ41252-2-2	TORSION SPRING
	31	PQM30017-23	SLIT WASHER
⚠	32	YU40149C	MODE CONTROL MOTOR
	33	YQ40398	MOTOR PULLEY
	34	YU40181-1-2	MOTOR BRAKET UNIT
	35	PQM30003-15	BELT
	36	SDSG2004M	SCREW
	37	SDSP2604Z	SCREW,X3
	38	SDSP2605Z	SCREW
	39	PQ30267B	PINCH ROLLER PLATE ASSY,INCL40
	40	PQM30001-153	TENSION SPRING
	41	PQM30017-23	SLIT WASHER
	42	PQ40843	TOGGLE ARM(1)
	43	PQ40844	TOGGLE ARM(2)
	44	PQ41124-1-1	TENSION SPRING
	45	REE2500	"E" RING
	46	PQ42864A	PINCH ROLLER ARM ASSEMBLY
	47	PQM30017-22	SLIT WASHER
	48	YQ40561A-4	TENSION POLE ASSEMBLY
	49	REE2000	"E"RING
	50	PQ40851A	TENSION BAND ASSEMBLY
	51	SDSP2605Z	SCREW
	52	PQ40855-2-4	TENSION SPRING
	53	PQ30269-2	CONTROL PLATE
	54	PQ42868	TORSION SPRING
	55	PQM30017-22	SLIT WASHER,X2
	56	PQM30017-23	SLIT WASHER
	57	PQ40858B	SEARCH BRAKE ASSEMBLY
	58	PQM30001-222	TENSION SPRING
	59	PQ40860C	REW BRAKE ASSY,INCL 60
	60	PQM30001-222	TENSION SPRING
	61	PQ40862A-2	FF BRAKE ASSY,INCL 62
	62	PQM30001-160-5	TENSION SPRING
	63	PQM30017-24	SLIT WASHER
	64	YU40632	REEL DISK(S)
	65	YU40633	REEL DISK(T)
	66	Q03093-828	WASHER, X2
	67	PQM30017-26	SLIT WASHER,X2
	68	YU40426	CLUTCH MECHA ASSY,INCL 69-72
	69	PU56650-1-4	TAKE-UP CLUTCH
	70	YU40427	SUP CLUTCH
	71	Q03093-827	SPACER, X2
	72	PQM30017-2	SLIT WASHER, X2
	73	PU49485-3	WIRE CLAMP, X3
	74	SDSP2608Z	SCREW, X4
	75	PUS37229B	CASSETTE LED ASSY
	76	SDSP2604Z	SCREW
	77	PQ42800	AL SW BRACKET
	78	PU58481	LEAF SWITCH
	79	SDSP2007Z	SCREW
	80	SDSP2604Z	SCREW
	81	LPSP2610Z	SCREW
	82	PQ42904	HEAD BASE ASSEMBLY
	83	PU59771	AUDIO/CONTROL HEAD
	84	PQM30002-188	COMPRESSION SPRING,X3
	85	SPSP2008Z	SCREW,X3
	86	SDSP2604Z	SCREW,X2
	87	PQ42803	FE HEAD ARM
	88	PU56330	FULL ERASE HEAD
	89	SDSP2005Z	SCREW
	90	PQ42804	LOWER FLANGE,X2
	91	PQ42953	COLLAR
	92	PQ42806	TORSION SPRING
	93	PQM30002-189	COMPRESSION.SPRING
	94	PQ42952	IMPEDANCE ROLLER
	95	Q03093-829	WASHER
	96	Q03093-831	WASHER,X2
	97	REE1500	"E" RING
	99	PU53629-2	TAPE GUIDE
	100	PQ41348-2	GUIDE FLANGE(T)
	101	PQ42999-2-1	GUIDE POLE CAP
	102	SDSP2005Z	SCREW
	103	YQ40653A-1	POLE BASE ASSEMBLY(SUPPLY)
	104	YQ40509B-2	POLE BASE ASSEMBLY(TAKE-UP)
	105	PQ40872	SPACER,X2
	106	PQ41269	SPECIAL SCREW,X2
⚠	107	YU40188V	CAPSTAN MOTOR
	108	PQ42909-1-1	CAPSTAN MOTOR BRACKET
	109	SDSP2604Z	SCREW,X4
	110	PQM30003-12	BELT
	111	PU59705A	DEW SENSOR ASSEMBLY
	112	SDSP2604Z	SCREW
	113	PQ42841-1-2	DOOR GUIDE
	114	PQ42039	LID GUIDE
	115	SDSP2604Z	SCREW
	116	YQ40634B	TU GUIDE ASSEMBLY
	117	YQ41149	TORSION SPRING
	118	Q03093-829	WASHER,X1
	119	PQM30017-25	SLIT WASHER
	120	PQ31604A-8	LOCK PLATE ASSEMBLY
	121	PQM30001-225	SPRING
	122	PQM30017-32	SLIT WASHER,X2
	123	PQ42815-1-1	CANCEL LEVER,X2
	124	PQM30013-10	FLANGE COLLAR,X2
	125	PQ42817	TORSION SPRING,X2
	126	SDSP2606Z	SCREW,X2
	127	QEPA1HM-105	NP E CAPACITOR
	128	Q03093-838	WASHER
	129	YU40245-01	WIRE CLAMP
	130	YU40328	WIRE CLAMP

6.6 E VF ASSEMBLY <M5>


29
60
3
14
1
18
21
13
27
E VF BOARD ASS'Y
E VF BOARD ASS'Y
50
33
28
16
32
E VF BOARD ASS'Y
51
27
52
22
40
6
CAUTION LABEL
CAUTION LABEL
24
2
8
23
34
19
SATISFACTION
26
26
10
SERIAL NO LABEL
29
25
4
RATING LABEL
25

•⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
			5. E. VIEWFINDER ASSEMBLY <M5>
	1	YU30034-044	TOP CASE
	2	YU30034-002	BOTTOM CASE
	3	YU30034-003	CRT TOP CASE
	4	YU30034-004	CRT BOTTOM CASE
	6	YU30034-006	SLIDE HOLDER
	8	YU30034-008	SLIDE KNOB
	10	YU30034-010	SHOE
	13	YU30034-013	WIRE CLAMP
	14	YU30034-014	COVER
	16	YU30034-016	EYE CAP
	18	YU30034-018	LENS SPRING
	19	YU30034-019	MIRROR
	21	YU30034-021	LEAF SPRING
	22	YU30034-048	INSULATOR
	23	YU30034-023	SLIDE SEAT
	24	YU30034-033	INSULATOR
	25	YU30034-024	SCREW, X2
	26	YU30034-025	SCREW, X2
	27	YU30034-082	E. VIEWFINDER BOARD ASSY, INCL. 28
	28	YU30034-035	V. F. CABLE ASSY
	29	YU30034-028	SOFT TAPE, X2
	32	YU30034-031	DEFLECTION YOKE
	33	YU30034-034	SCREW
	34	YU30034-038	SOFT TAPE
	40	YU30034-049	SHIELD SEAT
	50	YU30034-050	LENS HOLDER ASSY
	51	YU30034-051	LENS CASE ASSY
	52	YU30034-052	CRT MASK ASSY
	60	YU30034F	E.VIEWFINDER ASS'Y,INCL.1-52

6.7 OPERATION ASSEMBLY < M6 >


26
24
17
25
21
23
15
14
14
E CAP
<61>
ENCODER
<56>
11
10
27
V PROCESS
<55>
14
14
16
19
20
18
22
22
IMAGER 1
<52>
9
FAW
<54>
IMAGER 2
<51>
4
4
2
5
3
32
30
33
29
6
7
8
31
8
34
28
1
INDICATOR
<53>
12
13

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
			6. OPTICAL ASSEMBLY <M6>
⚠	1	YU40835-1-1	OPTICAL BLOCK ASSY
⚠	2	MN3761FS	IC(CCD)
	3	YQ30326	IMAGER HOLDER
	4	DPSP2010Z	SCREW,X2
	5	PQ42339	SPACER RUBBER
	6	YU40694	OPTICAL LPF
	7	YQ30096-2	OPTICAL LPF HOLDER
	8	SPSK2004F	MINI SCREW,X3
	9	SPSH1770N	SCREW,X2
	10	YU40136-2	SW REG
	11	LPSP2604Z	SCREW,X2
	12	YU40342	SHIELD PLATE
	13	SDSP2604Z	SCREW,X2
	14	SDSG2606Z	SCREW,X4
	15	YQ30066-1-2	L/V HOLDER
	16	YQ30102-1-2	VF RETAINER
	17	YQ30103-1-2	VF HOLDER
	18	YQ40427-1-2	BALL SPRING
	19	YQ40428	BALL HOLDER
	20	PU41135-5	STEEL BALL
	21	Q03093-821	WASHER,X3
	22	SPSH2060Z	SCREW, X2
	23	YQ40430	WAVE WASHER
	24	YQ40425-1-1	VF SHOE
	25	YQ40426-1-2	VF CLIP
	26	SSSK2060Z	SCREW,X2
	27	PU59191	BINDER
	28	YQ40699-2	PLATE
	29	YQ40532-1-1	BRACKET(1)
	30	YQ40533	BRACKET(2)
	31	SDSG2606Z	SCREW
	32	LPSP2606Z	SCREW
	33	YU40450	AF SHIELD
	34	YU40397	SHIELD PLATE

SECTION 7
ELECTRICAL PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

ABBREVIATIONS USED IN THIS PARTS LIST

RESISTORS	: All resistance values are in ohms (Ω), unless otherwise indicated.
k	: 1,000 (Kilo)
M	: 1,000,000 (Mega)

RESISTOR	: Resistor Carbon resistor Chip resistor Double chip resistor
FUSIBLE RESISTOR	: Fusible resistor
MF RESISTOR	: Metal film resistor
MP RESISTOR	: Metal plate resistor
OMF RESISTOR	: Oxide metal film resistor
V RESISTOR	: Variable resistor Chip variable resistor

CAPACITORS	: All capacitance values are in μF, unless otherwise indicated.
pF	: Picofarad (10^{-6} μF)

CAPACITOR	: Capacitor Ceramic capacitor Chip capacitor
E CAPACITOR	: Electrolytic capacitor Chip electrolytic capacitor
FM CAPACITOR	: Film Mica capacitor
M CAPACITOR	: Mylar capacitor
MM CAPACITOR	: Metalized mylar capacitor Metalized paper capacitor
NP E CAPACITOR	: Non-polar electrolytic capacitor Non-polar capacitor
PP CAPACITOR	: Polypropylene capacitor
TANTAL CAPACITOR	: Tantalum capacitor Chip tantalum capacitor
TF CAPACITOR	: Thin film capacitor
TRIMMER CAPACITOR	: Trimmer capacitor Chip trimmer capacitor

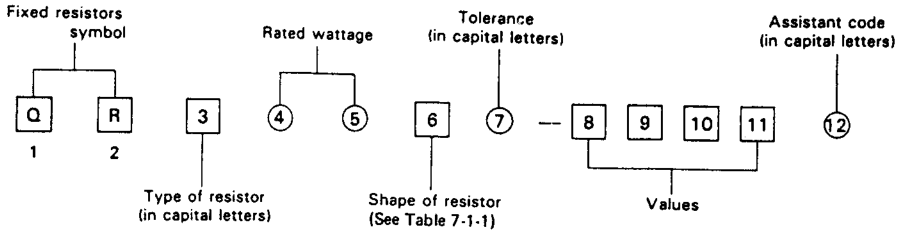
Notes:

- <2 digits> indicates circuit board symbol number.
- "X " indicates quantity per set.

7.1 STANDARD PART NUMBER CODING

7.1.1 Fixed resistor coding

Fixed resistor part numbers are as follows.


Fixed resistors symbol
Rated wattage
Tolerance (in capital letters)
Assistant code (in capital letters)
Q
R
3
④
⑤
6
⑦
8
9
10
11
⑫
1
2
Type of resistor (in capital letters)
Shape of resistor (See Table 7-1-1)
Values

Type of resistor (third digit)

C	Composition resistors
D	Carbon resistors
F	Unflammable resistors
G	Oxide metal film resistors
H	Fusible resistors
M	Metal plate resistors
S	Metal glazed resistors
V	Precision metal film resistors
W	Wire wound resistors
X	Metal film resistors
Z	Special resistors
B	Network resistors

Notes: first – third digits

NR☐	Chip resistors
QVP	Variable resistors
NVP	Chip variable resistors
NRB	Chip network resistors

Rated wattage (fourth and fifth digits)

A0	1/10 W
18	1/8 W
16	1/6 W
14	1/4 W
12	1/2 W
01	1 W
02	2 W
03	3 W
04	4 W
05	5 W
06	6 W
07	7 W
75	7.5 W
08	8 W
10	10 W
15	15 W
A6	16 W
20	20 W
30	30 W

Tolerance (seventh digit)

F	±1 %
G	±2 %
J	±5 %
K	±10 %
M	±20 %
S	+20/−10%

Values (eighth — tenth or eleventh digits)

examples:

R47		0.47 Ω
4R7		4.7 Ω
470	47×10^0	47 Ω
471	47×10^1	470 Ω
472	47×10^2	4.7 kΩ
473	47×10^3	47 kΩ
474	47×10^4	470 kΩ
475	47×10^5	4.7 MΩ

QRV resistance shown by four digits:

4640	464×10^0	464 Ω
4641	464×10^1	4.64 kΩ
4642	464×10^2	46.4 kΩ

Assistant code (twelfth digit)

A	Small type
B	Small type
S	Small type
Y	Lead tapping
Z	Lead tapping

Shape of resistor (sixth digit)

Note: ■ indicates flame retardant resistor.

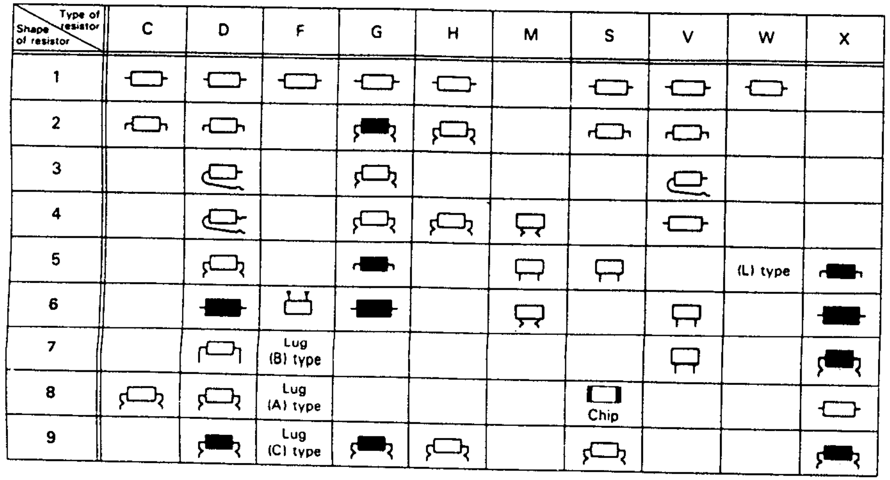
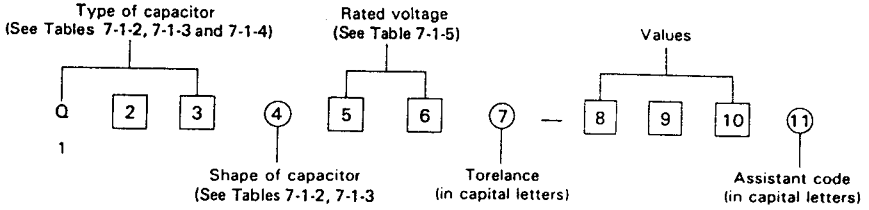

Type of resistor
Shape of resistor
C
D
F
G
H
M
S
V
W
X
1
2
3
4
5
6
7
8
9
(L) type
Lug (B) type
Lug (A) type
Chip
Lug (C) type

Table 7-1-1

7.1.2 Fixed capacitor coding

Fixed capacitor part numbers are as follows.


Type of capacitor (See Tables 7-1-2, 7-1-3 and 7-1-4)
Rated voltage (See Table 7-1-5)
Values
Q
2
3
④
5
6
⑦
8
9
10
⑪
1
Shape of capacitor (See Tables 7-1-2, 7-1-3 and 7-1-4)
Torelance (in capital letters)
Assistant code (in capital letters)

Ceramic capacitors

Type of capacitor (first – third digits)		Shape of capacitor (fourth digit)				
Symbol	Characteristics	Mono-direction	Kink lead	Axial straight lead	Axial forming lead	Chip
QCB	Ceramic			B	C	
QCC	Ceramic	1	3	4	5	
QCD	High capacitance			B		8,A
QCF	High capacitance	1,4	3	B		8,A
QCS	Temperature compensation	1	3	4,B	5,C	8,A
QCT	Temperature compensation	Special coding				8,A
QCV	Ceramic			1,B	3,C	
QCX	Ceramic			1,B	3,C	
QCY	High capacitance	1,4,5	3	6	7	8,A
QCZ	Special type	Special coding				

Table 7-1-2

Electrolytic capacitors

Type of capacitor (first – third digits)		Shape of capacitor (fourth digit)				
Symbol	Characteristics	Tubular	Mono-direction	Anti-stress	Forming	Snap-in
QEB	Low leakage		4	5	6	
QEC	Low leakage		4,8,A	5,B	6,C	9
QED	Miniature type		4	5	6	
QEE	Tantalum (normal)		4	5	6	
	Tantalum (small)		8			
QEF	Chip tantalum	8 (chip type)				
QEG	Low impedance		4			
QEK	Miniature type (φ5)		4,A	5,B	6,C	7
QEL	Small type				6	7
QEM	Small type		4,A	5,B	6,C	
QEN	Non-polar	2	4	5	6	7
QEP	Non-polar (small)	2	4,A	5,B	6,C	7
QER	Miniature type		4	5	6	7
QET	Normal	2	4,A	5,B	6,C	7
QEU	Small type		4	5	6	7
QEV	Small type		4	5	6	7
QEW	Normal	2	4	5	6	7
QEZ	Special type	Special coding				

Table 7-1-3

Paper film capacitors

Type of capacitor (first — third digits)		Shape of capacitor (fourth digit)				
		Tubular	Normal		Flame retardant	
Symbol	Characteristics		Mono-direction	Kink lead	Mono-direction	Kink lead
QFA	Metalized polypropylene	2	7			
QFE	Metalized mylar				5	
QFF	Film mica		4			
QFG	Polypropylene		4	8		
QFH	Metalized mylar	2	4,7,9	3,8	5	6
QFJ	Mylar (special)		4			
QFK	Metalized mylar (small)				5	
QFM	Mylar	2	4	3,7,8	5	6
QFN	Mylsr (small)		4	3,8		
QFP	Polypropylene		4	3,8		
QFS	Polystyrole	2	4	3,8		
QFV	Thin film		4	7,8		
QFZ	Special type	Special coding				

Table 7-1-4

Rated voltage (fifth and sixth digits)

Sixth digit / Fifth digit	A	B	C	D	E	F	G	H	J	K	P	V	W	X
0						3.15	4.0	5(5.5)	6.3					
1	10	12	16	20	25		40	50	63	80		35		
2	100	125	160	200	250	315	400	500	630	800	180	350	450	600
3	1000	1250		2000				5000						

Table 7-1-5

Tolerance (seventh digit)

A	$^{+100}_{-10}$ %	M	± 20 %
F	± 1 %	N	± 30 %
G	± 2 %	P	$^{+100}_{-0}$ %
H	$^{+50}_{-10}$ %	R	$^{+30}_{-10}$ %
J	± 5 %	X	$^{+40}_{-20}$ %
K	± 10 %	Z	$^{+80}_{-20}$ %

Values (eighth — tenth digits)

Example : Values are in picofarads

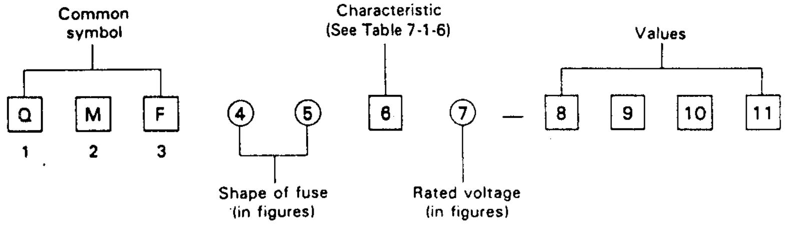
R10 .... 0.1 pF
1R0 .... 1.0 pF
100 .... 10× 10^0pF .... 10 pF
101 .... 10× 10^1 pF .... 100 pF
102 .... 10× 10^2 pF .... 1,000 pF (0.001 μF)
103 .... 10× 10^3 pF .... 10,000 pF (0.01 μF)
104 .... 10× 10^4 pF .... 100,000 pF (0.1 μF)
105 .... 10× 10^5 pF .... 1 μF
106 .... 10× 10^6 pF .... 10 μF

Assistant code (eleventh digit)

A	Small size	X	Tapping
G	Small size	Y	Lead tapping
W	Tapping or Forming	Z	Lead tapping

7.1.3 Fuse coding

Standard fuse part numbers are as follows.


Common symbol
Characteristic (See Table 7-1-6)
Values
Q
M
F
④
⑤
6
⑦
—
8
9
10
11
1
2
3
Shape of fuse (in figures)
Rated voltage (in figures)

Shape of fuse
(fourth and fifth digits)

51	ϕ5.2×20 mm
53	ϕ5.2×20 mm with lead wires
60	ϕ6.4×30 mm
61	ϕ6.35×31.8 mm
63	ϕ6.4×30 mm with lead wires
66	ϕ6.35×31.8 mm with lead wires
00	Special type

Rated voltage
(seventh digit)

1	AC125 V
2	AC250 V

Values
(eighth-tenth or eleventh digits)
example:

R315 .... 0.315 A
R63 .... 0.63 A
1R0 .... 1.0 A
1R25 .... 1.25 A
2R5 .... 2.5 A
100 .... 10 A

Characteristics (sixth digit)

Symbol	Fusing Current	Fusing Time	Remarks
A	210 %	Within 2 min.	Anti-rush type (for CB and SEMKO)
	275 %	0.6 — 10 sec.	
	400 %	0.15 — 3 sec.	
	1000 %	0.02 — 0.3 sec.	
B	210 %	Within 30 min.	Regular fusible type (for SEMKO and CB)
	275 %	0.05 — 2 sec.	
	400 %	0.01 — 0.3 sec.	
C	135 %	Within 1 hr.	Regular fusible type (for UL, CSA and Japan)
	200 %	Within 2 min.	
E	210 %	Within 2 min.	Anti-rush type (for Europe)
	275 %	0.6 — 10 sec.	
	400 %	0.15 — 3 sec.	
	1000 %	0.02 — 0.3 sec.	
J	135 %	Within 1 hr.	Anti-rush type (for UL, CSA and Japan)
	200 %	Within 2 min.	
M	135 %	Within 1 hr.	Regular fusible type (for UL and CSA)
	200 %	Within 2 min.	
R	160 %	Within 1 hr.	Regular fusible type (for Japan)
	200 %	Within 2 min.	
S	135 %	Within 1 hr.	Anti-rush type (for Japan)
	200 %	Within 2 min.	
U	135 %	Within 1 hr.	Anti-rush type (for UL and CSA)
	200 %	Within 2 min.	

Table 7-1-6

7. V/S/M BOARD ASSEMBLY <01>

*⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	PWBA	YB10030A-01	V/S/M BOARD ASSY
	IC1	NJM2234M	IC
	IC2	NJM2244M	IC
	IC3	NJM2244M	IC
	IC5	BA7131F	IC
	IC6	NJM2233AM	IC
	IC8	M52074FP	IC
	IC9	BU4030BF	IC
	IC10	VC2031MP	IC
	IC11	CXL5003M	IC
	IC13	AN78L09	IC
	IC301	HA118090MA	IC
	IC302	HA118092FP	IC
	IC401	BU2710FA	IC
	IC402	NJM2902E	IC
	IC403	BY7470	IC
	IC501	HD63705Z0F-CV14	IC
	OR	HD6305Z0F-CV14	IC
	IC502	UPD4538BG	IC
	OR	MN4538BS	SOP IC
	IC503	S-8054HN	IC
	IC601	S-81250HG	IC
	IC701	TA8609P	IC
	IC702	TA8733F	IC
	IC703	AN6392	IC
	IC901	BA7007F	IC
	Q1	DTC144EU	TRANSISTOR
	Q2	DTC144EU	TRANSISTOR
	Q3	FMU1	TRANSISTOR
	Q7	DTA143EU	TRANSISTOR
	Q8	2SA1576(QR)	TRANSISTOR
	Q9	DTC144EU	TRANSISTOR
	Q10	2SA1576(QR)	TRANSISTOR
	Q11	2SA1576(QR)	TRANSISTOR
	Q12	2SC4081(QR)	TRANSISTOR
	Q13	2SC4081	TRANSISTOR
	Q15	DTC144EU	TRANSISTOR
	Q16	2SA1576(QR)	TRANSISTOR
	Q17	2SA1576(QR)	TRANSISTOR
	Q18	2SC4081(QR)	TRANSISTOR
	Q19	2SC4081(QR)	TRANSISTOR
	Q20	2SC4081(QR)	TRANSISTOR
	Q21	2SC4081(QR)	TRANSISTOR
	Q22	2SA1036K(QR)	TRANSISTOR
	Q23	DTC144EU	TRANSISTOR
	Q24	2SA1576(QR)	TRANSISTOR
	Q25	DTC144EU	TRANSISTOR
	Q26	2SA1576(QR)	TRANSISTOR
	Q32	DTC144EU	TRANSISTOR
	Q34	DTC144EU	TRANSISTOR
	Q35	DTC144EU	TRANSISTOR
	Q37	DTA124EU	TRANSISTOR
	Q38	2SA1576(QR)	TRANSISTOR
	Q40	DTC144EU	TRANSISTOR
	Q41	DTC144EU	TRANSISTOR
	Q42	DTC144EU	TRANSISTOR
	Q43	DTC144EU	TRANSISTOR
	Q44	2SA1576(QR)	TRANSISTOR
	Q45	2SA1576(QR)	TRANSISTOR
	Q47	DTC124EU	TRANSISTOR
	Q48	DTC124EU	TRANSISTOR
	Q49	DTC144EU	TRANSISTOR
	Q50	DTC124EU	TRANSISTOR
	Q52	DTC144EU	TRANSISTOR
	Q53	DTA124EU	TRANSISTOR
	Q54	DTC144EU	TRANSISTOR
	Q55	2SC4081(QR)	TRANSISTOR
	Q56	DTC144EU	TRANSISTOR
	Q57	DTC144EU	TRANSISTOR
	Q58	2SA1576(QR)	TRANSISTOR
	Q60	2SC4081(QR)	TRANSISTOR
	Q61	2SC4081(QR)	TRANSISTOR
	Q62	DTC144EU	TRANSISTOR
	Q63	DTC144EU	TRANSISTOR
	Q64	DTC144EU	TRANSISTOR
	Q65	DTC144EU	TRANSISTOR
	Q66	2SA1036K(QR)	TRANSISTOR
	Q67	2SA1036K(QR)	TRANSISTOR
	Q68	2SA1036K(QR)	TRANSISTOR
	Q69	DTA124EU	TRANSISTOR
	Q70	DTA124EU	TRANSISTOR
	Q71	2SA1036K(QR)	TRANSISTOR
	Q72	2SA1036K(QR)	TRANSISTOR
	Q73	DTC144EU	TRANSISTOR
	Q74	FMU1	TRANSISTOR
	Q76	DTC144EU	TRANSISTOR
	Q77	DTC144EU	TRANSISTOR
	Q79	2SC4081(QR)	TRANSISTOR
	Q80	2SC4081(QR)	TRANSISTOR
	Q81	2SA933S(QR)	TRANSISTOR
	Q82	DTC124ES	TRANSISTOR
	Q83	DTC124ES	TRANSISTOR
	Q84	DTC124ES	TRANSISTOR
	Q301	DTC144EU	TRANSISTOR
	Q302	2SC2480	TRANSISTOR
	Q303	2SC4081(QR)	TRANSISTOR
	Q304	DTC124EU	TRANSISTOR
	Q305	2SC4081(QR)	TRANSISTOR
	Q306	DTC124EU	TRANSISTOR
	Q307	DTC144EU	TRANSISTOR
	Q308	DTA124EU	TRANSISTOR
	Q309	DTC144EU	TRANSISTOR
	Q310	2SC4081(QR)	TRANSISTOR
	Q311	2SA1576(QR)	TRANSISTOR
	Q312	2SA1576(QR)	TRANSISTOR
	Q313	2SA1576(QR)	TRANSISTOR
	Q401	2SA1576	TRANSISTOR
	Q402	2SC4081	TRANSISTOR
	Q403	2SA1576	TRANSISTOR
	Q404	2SC4081	TRANSISTOR
	Q406	DTA124EU	TRANSISTOR
	Q407	DTC124EU	TRANSISTOR
	Q408	2SC4081	TRANSISTOR
	Q409	DTA124EU	TRANSISTOR
	Q502	DTA124EU	TRANSISTOR
	Q505	DTC144EU	TRANSISTOR
	Q506	2SA1576	TRANSISTOR
	Q509	DTC124EU	TRANSISTOR
	Q510	DTC124EU	TRANSISTOR
	Q512	DTC144EU	TRANSISTOR
	Q513	DTC144EU	TRANSISTOR
	Q514	DTC144EU	TRANSISTOR
	Q515	DTA144WU	TRANSISTOR
	Q516	DTC124EU	TRANSISTOR
	Q601	2SC2412K(R)	TRANSISTOR
	Q602	2SC2412K(R)	TRANSISTOR
	Q701	2SC4116(YGL)	TRANSISTOR
	Q702	2SC4116(YGL)	TRANSISTOR
	Q703	2SC4116(YGL)	TRANSISTOR
	Q704	2SC4116(YGL)	TRANSISTOR
	Q707	DTC144EU	TRANSISTOR
	Q709	2SC4081(QR)	TRANSISTOR
	Q710	2SA1576(QR)	TRANSISTOR
	Q711	2SC4081(QR)	TRANSISTOR
	Q715	2SC4081(QR)	TRANSISTOR
	Q716	2SA1576(QR)	TRANSISTOR
	Q717	2SC4081(QR)	TRANSISTOR
	Q718	2SA1576(QR)	TRANSISTOR
	Q719	2SC4081(QR)	TRANSISTOR
	Q720	2SC4081(QR)	TRANSISTOR
	Q723	2SC4116(YGL)	TRANSISTOR
	Q728	DTC124EU	TRANSISTOR
	Q729	DTC144EU	TRANSISTOR
	Q730	2SA1036K(QR)	TRANSISTOR
	Q731	DTC144EU	TRANSISTOR
	Q735	2SC4116(YGL)	TRANSISTOR
	Q736	2SC4116(YGL)	TRANSISTOR
	Q737	2SA1586(YG)	TRANSISTOR
	Q740	2SC4081(QR)	TRANSISTOR
	Q741	2SC4081(QR)	TRANSISTOR
	Q742	DTC124EU	TRANSISTOR
	Q743	2SC4081(QR)	TRANSISTOR
	Q745	DTC144EU	TRANSISTOR
	Q746	DTC144EU	TRANSISTOR
	Q747	DTC144EU	TRANSISTOR
	Q748	DTC144EU	TRANSISTOR
	Q749	DTC144EU	TRANSISTOR
	Q750	DTC144ES	TRANSISTOR
	Q901	2SC4081(QR)	TRANSISTOR
	Q902	2SC4081(QR)	TRANSISTOR
	Q903	2SC4081(QR)	TRANSISTOR
	D1	DA204U	DIODE
	D2	DAN202U	DIODE
	D3	DA204U	DIODE
	D4	DAN202U	DIODE
	D5	DAN202U	DIODE
	D8	MA141K	DIODE
	D12	DAP202U	DIODE
	D13	DAN202U	DIODE
	D14	DAP202U	DIODE
	D16	DAN202U	DIODE
	D18	DAP202U	DIODE
	D19	DAN202U	DIODE
	D21	DAN202U	DIODE
	D23	DAN202U	DIODE
	D24	DAP202U	DIODE
	D25	DAN202U	DIODE
	D26	DAN202U	DIODE
	D27	DAN202U	DIODE
	D28	DAN202U	DIODE
	D29	DAN202U	DIODE
	D32	1SS133	DIODE
	D302	DAN202U	DIODE
	D303	DAP202U	DIODE
	D304	DAN202U	DIODE
	D305	DAP202U	DIODE
	D306	DAN202U	DIODE
	D307	DAN202U	DIODE
	D401	DA204U	DIODE
	D404	DAP202U	DIODE
	D405	DAN202U	DIODE
	D406	RD5.6EB2	ZENER DIODE
	D505	DAN202U	DIODE
	D506	DAN202U	DIODE
	D507	DAN202U	DIODE
	D508	DAP202U	DIODE
	D509	DAN202U	DIODE
	D511	DAN202U	DIODE
	D512	RD20EB2	ZENER DIODE
	D601	DAN202K	DIODE
	D602	1SS133	DIODE
	D701	DAP202U	DIODE
	D702	DAP202U	DIODE
	D703	MA141K	DIODE
	D704	DAN202U	DIODE
	R4	NRSA63J-103N	RESISTOR
	R5	NRSA63J-103N	RESISTOR
	R6	NRSA63J-223N	RESISTOR
	R10	QRD167J-750	RESISTOR
	R23	NRSA63J-222N	RESISTOR
	R24	QRD167J-750	RESISTOR
	R28	NRSA63J-273N	RESISTOR
	R29	NRSA63J-153N	RESISTOR
	R30	NRSA63J-182N	RESISTOR
	R31	NRSA63J-391N	RESISTOR
	R32	NRSA63J-151N	RESISTOR
	R33	NRSA63J-471N	RESISTOR
	R34	QRSA08J-821YN	RESISTOR
	R35	QRD167J-750	RESISTOR
	R36	QRSA08J-821YN	RESISTOR
	R37	QRD167J-750	RESISTOR
	R41	NRSA63J-223N	RESISTOR
	R42	NRSA63J-102N	RESISTOR
	R43	NRSA63J-331N	RESISTOR
	R45	NRSA63J-272N	RESISTOR
	R46	NRSA63J-271N	RESISTOR
	R47	NRSA63J-183N	RESISTOR
	R48	NRSA63J-472N	RESISTOR
	R49	NRSA63J-681N	RESISTOR
	R50	NRSA63J-562N	RESISTOR
	R51	NRSA63J-562N	RESISTOR
	R52	NRSA63J-222N	RESISTOR
	R53	NRSA63J-222N	RESISTOR
	R54	NRSA63J-222N	RESISTOR
	R55	NVP1301-222N	V RESISTOR, VIDEO OUT BURST LEVEL
	R56	NRSA63J-472N	RESISTOR
	R57	NRSA63J-154N	RESISTOR
	R58	NRSA63J-330N	RESISTOR
	R59	NRSA63J-102N	RESISTOR
	R60	NRSA63J-102N	RESISTOR
	R61	NRSA63J-393N	RESISTOR
	R62	NRSA63J-272N	RESISTOR
	R63	NVP1301-102N	V RESISTOR, VIDEO OUT LEVEL
	R64	NRSA63J-751N	RESISTOR
	R65	NRSA63J-223N	RESISTOR
	R66	QRSA08J-821YN	RESISTOR
	R67	QRSA08J-821YN	RESISTOR

*⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	R68	NRSA63J-102N	RESISTOR
	R69	NRSA63J-151N	RESISTOR
	R71	NRSA63J-102N	RESISTOR
	R72	QRD161J-222	RESISTOR
	R99	NRSA63J-103N	RESISTOR
	R100	NRSA63J-561N	RESISTOR
	R101	NRSA63J-222N	RESISTOR
	R102	NRSA63J-102N	RESISTOR
	R103	NRSA63J-122N	RESISTOR
	R106	NVP1301-103N	V RESISTOR,WHITE CLIP (S-MODE)
	R107	NVP1301-103N	V RESISTOR,WHITE CLIP (N-MODE)
	R108	NVP1301-103N	V RESISTOR,DARK CLIP (N-MODE)
	R109	NVP1301-103N	V RESISTOR,DARK CLIP (S-MODE)
	R110	NRSA63J-0R0A	RESISTOR
	R111	NVP1301-333N	V RESISTOR, EXT SEP Y LEVEL
	R112	NRSA63J-473N	RESISTOR
	R113	NRSA63J-473N	RESISTOR
	R114	NRSA63J-751N	RESISTOR
	R115	NRSA63J-102N	RESISTOR
	R116	NRSA63J-821N	RESISTOR
	R117	NRSA63J-681N	RESISTOR
	R118	NRSA63J-272N	RESISTOR
	R119	NVP1301-223N	V RESISTOR,DEVIATION (S-MODE)
	R120	NVP1301-223N	V RESISTOR,DEVIATION (N-MODE)
	R121	NRSA63J-104N	RESISTOR
	R122	NRSA63J-104N	RESISTOR
	R123	NVP1301-333N	V RESISTOR,CARRIER (S-MODE)
	R124	NVP1301-333N	V RESISTOR,CARRIER (N-MODE)
	R125	NRSA63J-223N	RESISTOR
	R126	NRSA63J-821N	RESISTOR
	R127	NRSA63J-471N	RESISTOR
	R128	NRSA63J-471N	RESISTOR
	R129	NRSA63J-821N	RESISTOR
	R130	NRSA63J-102N	RESISTOR
	R131	NRSA63J-102N	RESISTOR
	R132	NRSA63J-561N	RESISTOR
	R133	NRSA63J-332N	RESISTOR
	R134	NRSA63J-821N	RESISTOR
	R135	NRSA63J-561N	RESISTOR
	R136	NRSA63J-123N	RESISTOR
	R137	NRSA63J-682N	RESISTOR
	R139	NRSA63J-103N	RESISTOR
	R143	NVP1301-103N	V RESISTOR,PB Y LEVEL (N-MODE)
	R144	NVP1301-153N	V RESISTOR,PB Y LEVEL (S-MODE)
	R145	NRSA63J-562N	RESISTOR
	R146	NRSA63J-392N	RESISTOR
	R147	NRSA63J-681N	RESISTOR
	R151	NRSA63J-122N	RESISTOR
	R152	NRSA63J-562N	RESISTOR
	R153	NRSA63J-102N	RESISTOR
	R154	NRSA63J-102N	RESISTOR
	R155	NRSA63J-222N	RESISTOR
	R156	NRSA63J-223N	RESISTOR
	R157	NRSA63J-103N	RESISTOR
	R158	NRSA63J-393N	RESISTOR
	R159	NRSA63J-272N	RESISTOR
	R160	NRSA63J-393N	RESISTOR
	R161	NRSA63J-272N	RESISTOR
	R162	NRSA63J-393N	RESISTOR
	R163	NRSA63J-272N	RESISTOR
	R164	NRSA63J-393N	RESISTOR
	R165	NRSA63J-272N	RESISTOR
	R166	NRSA63J-393N	RESISTOR
	R167	NRSA63J-272N	RESISTOR
	R168	NRSA63J-102N	RESISTOR
	R169	NRSA63J-821N	RESISTOR
	R170	NRSA63J-391N	RESISTOR
	R172	NRSA63J-332N	RESISTOR
	R173	NRSA63J-102N	RESISTOR
	R174	NRSA63J-471N	RESISTOR
	R176	NRSA63J-474N	RESISTOR
	R177	NRSA63G-102N	RESISTOR
	R178	NRSA63J-823N	RESISTOR
	R179	NVP1301-103N	V RESISTOR, PROCESSOR. LIM.BAL.
	R180	NRSA63G-102N	RESISTOR
	R181	NRSA63G-471N	RESISTOR
	R182	NRSA63G-332N	RESISTOR
	R183	NRSA63J-102N	RESISTOR
	R188	NVP1301-472N	V RESISTOR, PROCESSOR. OUT LEVEL
	R189	QRSA08J-3R9YN	RESISTOR
	R190	NRSA63J-181N	RESISTOR
	R191	NVP1301-221N	V RESISTOR, PROCESSOR. IN LEVEL
	R193	NRSA63J-391N	RESISTOR
	R194	NRSA63J-102N	RESISTOR
	R195	NRSA63J-182N	RESISTOR
	R196	NRSA63J-222N	RESISTOR
	R197	NRSA63J-152N	RESISTOR
	R198	NRSA63J-105N	RESISTOR
	R199	QRSA08J-475YN	RESISTOR
	R200	NRSA63J-242N	RESISTOR
	R201	NRSA63J-103N	RESISTOR
	R202	NRSA63J-681N	RESISTOR
	R203	NRSA63J-392N	RESISTOR
	R204	NVP1301-222N	V RESISTOR, CCD LEVEL
	R205	NRSA63J-102N	RESISTOR
	R206	NRSA63J-102N	RESISTOR
	R208	NRSA63J-103N	RESISTOR
	R209	NRSA63J-331N	RESISTOR
	R210	NRSA63J-103N	RESISTOR
	R212	NRSA63J-223N	RESISTOR
	R213	NRSA63J-0R0A	RESISTOR
	R214	NRSA63J-102N	RESISTOR
	R216	NRSA63J-333	RESISTOR
	R217	QRD161J-102	RESISTOR
	R220	QRD161J-181	RESISTOR
	R221	QRD161J-102	RESISTOR
	R222	QRD161J-153	RESISTOR
	R223	QRD161J-332	RESISTOR
	R225	QRD161J-125	RESISTOR
	R226	QRD161J-222	RESISTOR
	R300	NVP1301-473N	V RESISTOR,PILOT BURST LEVEL
	R301	NRSA63J-823N	RESISTOR
	R302	NRSA63J-181N	RESISTOR
	R304	NRSA63J-103N	RESISTOR
	R305	NRSA63J-332N	RESISTOR
	R306	NRSA63J-393N	RESISTOR
	R307	NRSA63J-222N	RESISTOR
	R308	NRSA63J-821N	RESISTOR
	R309	NRSA63J-221N	RESISTOR
	R310	NRSA63J-331N	RESISTOR
	R312	NRSA63J-471N	RESISTOR
	R313	NRSA63J-331N	RESISTOR
	R314	NRSA63J-102N	RESISTOR
	R315	NRSA63J-391N	RESISTOR
	R316	NRSA63J-102N	RESISTOR
	R317	NRSA63J-104N	RESISTOR
	R318	NRSA63J-471N	RESISTOR
	R319	NRSA63J-391N	RESISTOR
	R320	NRSA63J-821N	RESISTOR
	R323	NRSA63J-183N	RESISTOR
	R324	NRSA63J-473N	RESISTOR
	R325	NRSA63J-225N	RESISTOR
	R326	NRSA63J-561N	RESISTOR
	R327	NRSA63J-471N	RESISTOR
	R328	NRSA63J-102N	RESISTOR
	R329	NRSA63J-182N	RESISTOR
	R330	NRSA63J-103N	RESISTOR
	R331	NRSA63J-102N	RESISTOR
	R332	NRSA63J-102N	RESISTOR
	R335	NRSA63J-273N	RESISTOR
	R336	NRSA63J-153N	RESISTOR
	R337	NRSA63J-182N	RESISTOR
	R338	NRSA63J-471N	RESISTOR
	R339	NRSA63J-151N	RESISTOR
	R340	NRSA63J-221N	RESISTOR
	R341	NRSA63J-102N	RESISTOR
	R342	NRSA63J-751N	RESISTOR
	R343	NRSA63J-152N	RESISTOR
	R346	NRSA63J-223N	RESISTOR
	R347	NRSA63J-333N	RESISTOR
	R348	NRSA63J-273N	RESISTOR
	R401	NRSA63J-474N	RESISTOR
	R402	NRSA63J-684N	RESISTOR
	R403	NRSA63J-823N	RESISTOR
	R404	NRSA63J-105N	RESISTOR
	R405	NRSA63J-105N	RESISTOR
	R406	NRSA63J-393N	RESISTOR
	R407	NRSA63J-683N	RESISTOR
	R408	NRSA63J-105N	RESISTOR
	R409	NRSA63J-333N	RESISTOR
	R410	NRSA63J-684N	RESISTOR
	R411	NRSA63J-473N	RESISTOR
	R415	NRSA63J-472N	RESISTOR
	R416	NRSA63J-103N	RESISTOR
	R417	NRSA63J-332N	RESISTOR
	R418	NRSA63J-123N	RESISTOR
	R419	NRSA63J-123N	RESISTOR
	R420	NRSA63J-104N	RESISTOR
	R421	NRSA63J-104N	RESISTOR
	R422	NRSA63J-104N	RESISTOR
	R423	NRSA63J-104N	RESISTOR
	R424	NRSA63J-223N	RESISTOR
	R425	PU59237-223	V RESISTOR, TRACKING PRESET
	R426	NRSA63J-563N	RESISTOR
	R427	PU59237-474	V RESISTOR, PB SW POINT
	R428	PU59237-334	V RESISTER,V PULSE
	R429	NRSA63J-683N	RESISTOR
	R430	NRSA63J-103N	RESISTOR
	R431	NRSA63J-105N	RESISTOR
	R432	NRSA63J-222N	RESISTOR
	R433	NRSA63J-681N	RESISTOR
	R435	NRSA63J-103N	RESISTOR
	R436	NRSA63J-822N	RESISTOR
	R437	NRSA63J-472N	RESISTOR
	R438	NRSA63J-394N	RESISTOR
	R439	NRSA63J-103N	RESISTOR
	R440	NRSA63J-103N	RESISTOR
	R441	NRSA63J-472N	RESISTOR
	R443	QRD161J-153	RESISTOR
	R501	NRSA63J-103N	RESISTOR
	R502	NRSA63J-104N	RESISTOR
	R503	QRSA08J-221YN	RESISTOR
	R504	NRSA63J-102N	RESISTOR
	R505	NRSA63J-102N	RESISTOR
	R506	NRSA63J-102N	RESISTOR
	R507	NRSA63J-102N	RESISTOR
	R508	NRSA63J-102N	RESISTOR
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	R510	NRSA63J-102N	RESISTOR
	R511	NRSA63J-102N	RESISTOR
	R512	NRSA63J-102N	RESISTOR
	R513	NRSA63J-333N	RESISTOR
	R514	NRSA63J-153N	RESISTOR
	R515	NRSA63J-102N	RESISTOR
	R516	NRSA63J-102N	RESISTOR
	R517	NRSA63J-102N	RESISTOR
	R518	NRSA63J-102N	RESISTOR
	R519	NRSA63J-473N	RESISTOR
	R520	NRSA63J-473N	RESISTOR
	R521	NRSA63J-473N	RESISTOR
	R522	NRSA63J-473N	RESISTOR
	R523	NRSA63J-473N	RESISTOR
	R524	NRSA63J-473N	RESISTOR
	R525	NRSA63J-473N	RESISTOR
	R526	NRSA63J-473N	RESISTOR
	R527	NRSA63J-103N	RESISTOR
	R528	NRSA63J-333N	RESISTOR
	R529	NRSA63J-103N	RESISTOR
	R530	NRSA63J-102N	RESISTOR
	R531	NRSA63J-103N	RESISTOR
	R532	NRSA63J-103N	RESISTOR
	R533	NRSA63J-103N	RESISTOR
	R534	NRSA63J-102N	RESISTOR
	R535	NRSA63J-102N	RESISTOR
	R537	NRSA63J-103N	RESISTOR
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	R539	NRSA63J-103N	RESISTOR
	R540	NRSA63J-102N	RESISTOR
	R541	NRSA63J-102N	RESISTOR
	R542	NRSA63J-102N	RESISTOR
	R543	NRSA63J-102N	RESISTOR
	R544	NRSA63J-102N	RESISTOR
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	R546	NRSA63J-102N	RESISTOR
	R547	NRSA63J-102N	RESISTOR
	R548	NRSA63J-102N	RESISTOR
	R549	NRSA63J-203N	RESISTOR
	R550	NRSA63J-203N	RESISTOR
	R551	NRSA63J-103N	RESISTOR
	R552	NRSA63J-203N	RESISTOR
	R553	NRSA63J-103N	RESISTOR
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	R556	NRSA63J-103N	RESISTOR
	R557	NRSA63J-102N	RESISTOR
	R558	NRSA63J-102N	RESISTOR
	R559	NRSA63J-103N	RESISTOR
	R560	NRSA63J-103N	RESISTOR
	R562	NRSA63J-103N	RESISTOR
	R563	NRSA63J-102N	RESISTOR
	R564	NRSA63J-102N	RESISTOR
	R565	NRSA63J-102N	RESISTOR
	R566	NRSA63J-102N	RESISTOR
	R567	NRSA63J-102N	RESISTOR
	R568	NRSA63J-102N	RESISTOR
	R569	NRSA63J-102N	RESISTOR
	R570	NRSA63J-102N	RESISTOR
	R572	NRSA63J-102N	RESISTOR
	R576	NRSA63J-333N	RESISTOR
	R577	NRSA63J-472N	RESISTOR
	R581	NRSA63J-223N	RESISTOR
	R583	NRSA63J-223N	RESISTOR
	R584	NRSA63J-333N	RESISTOR

#△	REF NO.	PART NO.	PART NAME, DESCRIPTION
	R585	NRSA63J-104N	RESISTOR
	R586	NRSA63J-333N	RESISTOR
	R587	NRSA63J-104N	RESISTOR
	R588	NRSA63J-333N	RESISTOR
	R590	NRSA63J-222N	RESISTOR
	R591	NRSA63J-333N	RESISTOR
	R592	PU59237-682	V RESISTOR,BATT DOWN ADJ
	R593	NRSA63J-123N	RESISTOR
	R595	NRSA63J-332N	RESISTOR
	R596	NRSA63J-332N	RESISTOR
	R597	NRSA63J-223N	RESISTOR
	R601	NRSA63J-332N	RESISTOR
	R602	NRSA63J-333N	RESISTOR
	R603	NRSA63J-332N	RESISTOR
	R604	NRSA63J-333N	RESISTOR
	R651	NRSA63J-103N	RESISTOR
	R652	NRSA63J-472N	RESISTOR
	R653	NRSA63J-472N	RESISTOR
	R654	NRSA63J-104N	RESISTOR
	R655	NRSA63J-333N	RESISTOR
	R661	NRSA63J-223N	RESISTOR
	R662	NRSA63J-472N	RESISTOR
	R664	NRSA63J-333N	RESISTOR
	R665	NRSA63J-223N	RESISTOR
	R701	NRSA63J-100N	RESISTOR
	R702	NRSA63J-100N	RESISTOR
	R703	NRSA63J-272N	RESISTOR
	R704	NRSA63J-272N	RESISTOR
	R705	NRSA63J-100N	RESISTOR
	R706	NRSA63J-100N	RESISTOR
	R707	NRSA63J-272N	RESISTOR
	R708	NRSA63J-272N	RESISTOR
	R709	NRSA63J-103N	RESISTOR
	R710	NVP1301-471N	V RESISTOR,SP CH1 Q
	R711	NRSA63J-103N	RESISTOR
	R712	NVP1301-471N	V RESISTOR,SP CH2 Q
	R713	NVP1301-471N	V RESISTOR,LP CH1 Q
	R714	NRSA63J-103N	RESISTOR
	R715	NVP1301-471N	V RESISTOR,LP CH2 Q
	R716	NRSA63J-103N	RESISTOR
	R717	NRSA63J-223N	RESISTOR
	R720	NRSA63J-823N	RESISTOR
	R721	NRSA63J-122N	RESISTOR
	R722	NRSA63J-221N	RESISTOR
	R723	NRSA63J-102N	RESISTOR
	R724	NRSA63J-122N	RESISTOR
	R725	NRSA63J-221N	RESISTOR
	R726	NRSA63J-102N	RESISTOR
	R727	NRSA63J-103N	RESISTOR
	R728	NRSA63J-471N	RESISTOR
	R729	NRSA63J-223N	RESISTOR
	R730	NRSA63J-273N	RESISTOR
	R731	NRSA63J-102N	RESISTOR
	R732	NRSA63J-102N	RESISTOR
	R734	NRSA63J-471N	RESISTOR
	R735	NVP1301-222N	V RESISTOR,VIDEO EQ (S-MODE)
	R737	NRSA63J-561N	RESISTOR
	R738	NRSA63J-152N	RESISTOR
	R739	NRSA63J-561N	RESISTOR
	R740	NRSA63J-472N	RESISTOR
	R741	NRSA63J-681N	RESISTOR
	R742	NRSA63J-122N	RESISTOR
	R743	NRSA63J-102N	RESISTOR
	R744	NRSA63J-102N	RESISTOR
	R745	NRSA63J-332N	RESISTOR

#△	REF NO.	PART NO.	PART NAME, DESCRIPTION
	R746	NRSA63J-102N	RESISTOR
	R747	NRSA63J-102N	RESISTOR
	R748	NRSA63J-271N	RESISTOR
	R749	NRSA63J-561N	RESISTOR
	R750	NRSA63J-751N	RESISTOR
	R751	NRSA63J-821N	RESISTOR
	R752	NRSA63J-102N	RESISTOR
	R753	NRSA63J-102N	RESISTOR
	R754	NRSA63J-222N	RESISTOR
	R755	NRSA63J-561N	RESISTOR
	R756	NRSA63J-101N	RESISTOR
	R757	NVP1301-332N	V RESISTOR,VIDEO EQ (N-MODE)
	R759	NRSA63J-102N	RESISTOR
	R760	NRSA63J-103N	RESISTOR
	R761	NRSA63J-223N	RESISTOR
	R763	NRSA63J-122N	RESISTOR
	R769	NRSA63J-102N	RESISTOR
	R770	NRSA63J-623N	RESISTOR
	R771	NRSA63J-821N	RESISTOR
	R772	NRSA63J-820N	RESISTOR
	R773	NRSA63J-820N	RESISTOR
	R775	NRSA63J-222N	RESISTOR
	R776	NRSA63J-472N	RESISTOR
	R777	NRSA63J-222N	RESISTOR
	R778	NRSA63J-393N	RESISTOR
	R785	NRSA63J-333N	RESISTOR
	R786	NRSA63J-391N	RESISTOR
	R787	NRSA63J-102N	RESISTOR
	R788	NVP1301-102N	V RESISTOR, REC FM LEVEL (S—MODE)
	R790	NRSA63J-223N	RESISTOR
	R791	NRSA63J-153N	RESISTOR
	R792	NRSA63J-681N	RESISTOR
	R793	NRSA63J-103N	RESISTOR
	R794	NRSA63J-223N	RESISTOR
	R796	NVP1301-102N	V RESISTOR, REC FM LEVEL (N—MODE)
	R797	NRSA63J-102N	RESISTOR
	R798	NRSA63J-102N	RESISTOR
	R799	NRSA63J-681N	RESISTOR
	R800	NRSA63J-182N	RESISTOR
	R801	NVP1301-471N	V RESISTOR, REC COLOR LEVEL
	R803	NRSA63J-223N	RESISTOR
	R804	NRSA63J-153N	RESISTOR
	R805	NRSA63J-681N	RESISTOR
	R809	NRSA63J-223N	RESISTOR
	R810	NRSA63J-223N	RESISTOR
	R812	NRSA63J-103N	RESISTOR
	R813	NRSA63J-103N	RESISTOR
	R814	NRSA63J-223N	RESISTOR
	R815	NRSA63J-272N	RESISTOR
	R816	NRSA63J-151N	RESISTOR
	R817	NRSA63J-333N	RESISTOR
	R818	NRSA63J-102N	RESISTOR
	R819	NRSA63J-561N	RESISTOR
	R820	NRSA63J-683N	RESISTOR
	R821	NRSA63J-683N	RESISTOR
	R823	QRD161J-821	RESISTOR
	R900	NRSA63J-154N	RESISTOR
	R901	NRSA63J-222N	RESISTOR
	R904	NVP1301-102N	V RESISTOR, COLOR DET LEVEL
	R905	NRSA63J-393N	RESISTOR
	R906	NRSA63J-151N	RESISTOR
	R907	NRSA63J-103N	RESISTOR
	R910	NRSA63J-562N	RESISTOR

#△	REF NO.	PART NO.	PART NAME, DESCRIPTION
	R911	NRSA63J-333N	RESISTOR
	R912	NRSA63J-103N	RESISTOR
	R913	NRSA63J-103N	RESISTOR
	R914	NRSA63J-471N	RESISTOR
	R915	NRSA63J-473N	RESISTOR
	R916	NRSA63J-102N	RESISTOR
	R917	NRSA63J-102N	RESISTOR
	R918	NRSA63J-272N	RESISTOR
	B1	NRSA63J-0R0A	RESISTOR
	B2	NRSA63J-0R0A	RESISTOR
	B3	NRSA63J-0R0A	RESISTOR
	B4	NRSA63J-0R0A	RESISTOR
	B401	QRSA08J-0R0Y	RESISTOR
	B501	NRSA63J-0R0A	RESISTOR
	B502	NRSA63J-0R0A	RESISTOR
	B503	NRSA63J-0R0A	RESISTOR
	B505	NRSA63J-103N	RESISTOR
	B506	NRSA63J-0R0A	RESISTOR
	B507	QRSA08J-0R0Y	RESISTOR
	B508	NRSA63J-0R0A	RESISTOR
	B509	NRSA63J-0R0A	RESISTOR
	B517	NRSA63J-0R0A	RESISTOR
	B519	QRSA08J-0R0Y	RESISTOR
	B520	NRSA63J-0R0A	RESISTOR
	B521	NRSA63J-0R0A	RESISTOR
	C1	QER41CM-106ZE	E CAPACITOR
	C2	NCB31EK-103A	CAPACITOR
	C3	NCB31EK-103A	CAPACITOR
	C4	NCB31EK-103A	CAPACITOR
	C5	QER40JM-476ZE	E CAPACITOR
	C6	QER41CM-106ZE	E CAPACITOR
	C7	QEKA0HM-477	E CAPACITOR
	C8	QER41EM-475ZE	E CAPACITOR
	C9	QER41EM-475ZE	E CAPACITOR
	C10	QER41EM-475ZE	E CAPACITOR
	C11	QER41EM-475ZE	E CAPACITOR
	C12	QEKA0HM-477	E CAPACITOR
	C13	NCB31EK-103A	CAPACITOR
	C14	QER40JM-476ZE	E CAPACITOR
	C16	NCB31EK-103A	CAPACITOR
	C21	NCB31EK-103A	CAPACITOR
	C22	QER40JM-476ZE	E CAPACITOR
	C23	NCB31EK-103A	CAPACITOR
	C24	QCFA1EZ-104	CAPACITOR
	C25	QCFA1EZ-104	CAPACITOR
	C33	QER40JM-476ZE	E CAPACITOR
	C35	NCB31EK-103A	CAPACITOR
	C36	NCB31EK-103A	CAPACITOR
	C37	NCB31EK-103A	CAPACITOR
	C38	NCB31EK-103A	CAPACITOR
	C39	NCB31EK-103A	CAPACITOR
	C40	NCB31EK-103A	CAPACITOR
	C41	QER40JM-476ZE	E CAPACITOR
	C43	QER40JM-226ZE	E CAPACITOR
	C44	QER41CM-106ZE	E CAPACITOR
	C45	NCS31HJ-100A	CAPACITOR
	C46	QCSA1HJ-471	CAPACITOR
	C47	QER40JM-476	E CAPACITOR
	C48	NCB31EK-103A	CAPACITOR
	C49	NCB31EK-103A	CAPACITOR
	C50	QER40JM-476ZE	E CAPACITOR
	C51	NCB31EK-103A	CAPACITOR
	C52	QEPA1CM-106ZE	E CAPACITOR
	C53	QER41HM-105ZE	E CAPACITOR
	C54	QER41HM-105ZE	E CAPACITOR

#△	REF NO.	PART NO.	PART NAME, DESCRIPTION
	C55	QER40JM-476ZE	E CAPACITOR
	C56	QER40JM-476ZE	E CAPACITOR
	C73	NCS31HJ-820A	CAPACITOR
	C75	QER41CM-106ZE	E CAPACITOR
	C77	QER41HM-105ZE	E CAPACITOR
	C78	QER41HM-474ZE	E CAPACITOR
	C79	QER41HM-474ZE	E CAPACITOR
	C81	NCB31EK-103A	CAPACITOR
	C82	QER41HM-474ZE	E CAPACITOR
	C83	QER41CM-106ZE	E CAPACITOR
	C84	QER41CM-106ZE	E CAPACITOR
	C85	QER40JM-107ZE	E CAPACITOR
	C86	NCB31EK-103A	CAPACITOR
	C87	QER41CM-106ZE	E CAPACITOR
	C88	QEE41EM-225	TANTAL CAPACITOR
	C89	QER41HM-225ZE	E CAPACITOR
	C90	QER41HM-225	E CAPACITOR
	C91	NCS31HJ-271A	CAPACITOR
	C92	NCS31HJ-101A	CAPACITOR
	C93	NCS31HJ-271A	CAPACITOR
	C96	QCSA1HJ-391	CAPACITOR
	C97	NCS31HJ-470A	CAPACITOR
	C99	NCB31EK-103A	CAPACITOR
	C100	NCB31EK-103A	CAPACITOR
	C101	NCB31EK-103A	CAPACITOR
	C102	NCB31EK-103A	CAPACITOR
	C103	QER40JM-107ZE	E CAPACITOR
	C104	NCS31HJ-390A	CAPACITOR
	C105	NCS31HJ-100A	CAPACITOR
	C106	NCB31EK-103A	CAPACITOR
	C107	NCB31EK-103A	CAPACITOR
	C108	QER41HM-224ZE	E CAPACITOR
	C109	QCSA1HJ-391	CAPACITOR
	C110	NCB31EK-103A	CAPACITOR
	C111	NCB31EK-103A	CAPACITOR
	C112	NCB31EK-103A	CAPACITOR
	C113	NCS31HJ-271A	CAPACITOR
	C114	NCS31HJ-820A	CAPACITOR
	C116	YU40173-271Z	CAPACITOR
	C117	QER41EM-475ZE	E CAPACITOR
	C120	QER41EM-475ZE	E CAPACITOR
	C121	QER41EM-475ZE	E CAPACITOR
	C122	QER41EM-475ZE	E CAPACITOR
	C123	QER41CM-106ZE	E CAPACITOR
	C124	NCB31EK-103A	CAPACITOR
	C125	QER40JM-476ZE	E CAPACITOR
	C126	NCB31EK-103A	CAPACITOR
	C128	YU40173-271Z	CAPACITOR
	C129	YU40173-820Z	CAPACITOR
	C132	NCB31EK-103A	CAPACITOR
	C133	QER41HM-474ZE	E CAPACITOR
	C134	NCB31EK-103A	CAPACITOR
	C138	QER40JM-476ZE	E CAPACITOR
	C139	NCB31EK-103A	CAPACITOR
	C140	NCB31EK-103A	CAPACITOR
	C141	QER41CM-336ZE	E CAPACITOR
	C142	QER41CM-106ZE	E CAPACITOR
	C144	QER41CM-336ZE	E CAPACITOR
	C146	NCB31EK-103A	CAPACITOR
	C147	QER41HM-104ZE	E CAPACITOR
	C148	QER40JM-476ZE	E CAPACITOR
	C149	QER41EM-475ZE	E CAPACITOR
	C150	NCS31HJ-820A	CAPACITOR
	C151	NCS31HJ-330A	CAPACITOR
	C153	QCS11HJ-680	CAPACITOR

*⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	C301	NCB31EK-103A	CAPACITOR
	C302	NCB31EK-103A	CAPACITOR
	C303	QER40JM-107ZE	E CAPACITOR
	C304	NCB31EK-103A	CAPACITOR
	C305	QCYA1EK-103	CAPACITOR
	C306	QCFA1EZ-104	CAPACITOR
	C307	QER41HM-474ZE	E CAPACITOR
	C308	QER41HM-474ZE	E CAPACITOR
	C309	NCB31EK-103A	CAPACITOR
	C310	QER41EM-335ZE	E CAPACITOR
	C311	QCFA1EZ-104	CAPACITOR
	C312	QER40JM-107ZE	E CAPACITOR
	C313	QCFA1EZ-683	CAPACITOR
	C314	NCS31HJ-221A	CAPACITOR
	C315	NCB31EK-103A	CAPACITOR
	C316	QER40JM-107ZE	E CAPACITOR
	C317	NCB31EK-103A	CAPACITOR
	C318	NCT06CH-470A	CAPACITOR
	C319	QFN41HJ-563	M CAPACITOR
	C320	QFN41HJ-104	M CAPACITOR
	C321	QCYA1HJ-153	CAPACITOR
	C322	QER41HM-104ZE	E CAPACITOR
	C323	QCSA1HJ-391	CAPACITOR
	C324	NCS31HJ-101A	CAPACITOR
	C325	NCB31EK-103A	CAPACITOR
	C327	NCB31EK-103A	CAPACITOR
	C328	NCB31EK-103A	CAPACITOR
	C329	NCB31EK-103A	CAPACITOR
	C330	NRSA63J-0R0A	RESISTOR
	C331	NCB31EK-103A	CAPACITOR
	C332	NCS31HJ-220A	CAPACITOR
	C333	NCR21CK-473A	CAPACITOR
	C334	QCYA1HK-562	CAPACITOR
	C335	NCB31EK-103A	CAPACITOR
	C336	NCB31EK-103A	CAPACITOR
	C337	QER41HM-474ZE	E CAPACITOR
	C338	QER41HM-474ZE	E CAPACITOR
	C339	NCB31EK-103A	CAPACITOR
	C340	QER41EM-475ZE	E CAPACITOR
	C344	QFN41HJ-223	M CAPACITOR
	C345	NCB31EK-103A	CAPACITOR
	C346	NCB31EK-103A	CAPACITOR
	C347	QER41HM-105ZE	E CAPACITOR
	C348	QER41HM-105ZE	E CAPACITOR
	C349	NCB31EK-103A	CAPACITOR
	C350	NCB31EK-103A	CAPACITOR
	C351	NCS31HJ-101A	CAPACITOR
	C352	NCB31EK-103A	CAPACITOR
	C353	NCB31EK-103A	CAPACITOR
	C354	QER40JM-476ZE	E CAPACITOR
	C355	QER41HM-104ZE	E CAPACITOR
	C356	QER41HM-104ZE	E CAPACITOR
	C357	NCS31HJ-820A	CAPACITOR
	C358	NCB31EK-103A	CAPACITOR
	C359	NCS31HJ-560A	CAPACITOR
	C360	NCS31HJ-390A	CAPACITOR
	C361	NCB31EK-103A	CAPACITOR
	C362	NRSA63J-0R0A	RESISTOR
	C363	NRSA63J-0R0A	RESISTOR
	C364	NCT06CH-4R0A	CAPACITOR
	C401	QER41HM-225	E CAPACITOR
	C402	QER41HM-225	E CAPACITOR
	C403	QER41CM-106	E CAPACITOR
	C404	QER41CM-106	E CAPACITOR
	C405	QFZ0095-104	MM CAPACITOR

*⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	C406	QEPA1EM-475	NP E CAPACITOR
	C407	NCB31HK-332A	CAPACITOR
	C408	QEPA1HM-474	NP E CAPACITOR
	C409	QFN41HJ-393	M CAPACITOR
	C410	QFN41HJ-823	M CAPACITOR
	C411	NCB31HK-102A	CAPACITOR
	C412	NCB31HK-102A	CAPACITOR
	C413	QER40JM-107	E CAPACITOR
	C414	NCB31HK-102A	CAPACITOR
	C415	NCB31HK-102A	CAPACITOR
	C416	QFN41HJ-103	M CAPACITOR
	C417	NCB31HK-332A	CAPACITOR
	C418	NCS31HJ-270A	CAPACITOR
	C419	NCS31HJ-270A	CAPACITOR
	C420	QER40JM-107	E CAPACITOR
	C421	QER41CM-476	E CAPACITOR
	C422	QER41CM-226	E CAPACITOR
	C423	QER41CM-106	E CAPACITOR
	C426	QER41HM-105	E CAPACITOR
	C427	NCF31CZ-104A	CAPACITOR
	C501	NCS31HJ-330A	CAPACITOR
	C502	NCS31HJ-330A	CAPACITOR
	C503	QER41EM-475	E CAPACITOR
	C504	QCFA1EZ-104	CAPACITOR
	C505	QFN41HJ-103	M CAPACITOR
	C506	QFN41HJ-103	M CAPACITOR
	C507	NCS31HJ-101A	CAPACITOR
	C508	NCS31HJ-101A	CAPACITOR
	C509	QCYA1HK-472	CAPACITOR
	C511	QCFA1EZ-104	CAPACITOR
	C601	QER41EM-336	E CAPACITOR
	C602	QER40JM-107	E CAPACITOR
	C603	QER41EM-336	E CAPACITOR
	C604	QER41AM-476	E CAPACITOR
	C605	QCYA1HK-223	CAPACITOR
	C606	QER41EM-106	E CAPACITOR
	C607	QER40JM-107	E CAPACITOR
	C609	QET41EM-107	E CAPACITOR
	C610	QET41EM-107	E CAPACITOR
	C701	NCB31EK-103A	CAPACITOR
	C702	NCB31EK-103A	CAPACITOR
	C703	NCB31EK-103A	CAPACITOR
	C704	NCB31EK-103A	CAPACITOR
	C705	NCB31EK-103A	CAPACITOR
	C706	NCB31EK-103A	CAPACITOR
	C707	NCB31EK-103A	CAPACITOR
	C708	NCB31EK-103A	CAPACITOR
	C709	PU56274-200	TRIMMER CAPACITOR,LP CH1 f_0
	C710	PU56274-200	TRIMMER CAPACITOR,SP CH2 f_0
	C711	PU56274-200	TRIMMER CAPACITOR,LP CH2 f_0
	C712	PU56274-200	TRIMMER CAPACITOR,SP CH1 f_0
	C713	NCB31EK-103A	CAPACITOR
	C714	NCB31EK-103A	CAPACITOR
	C715	QER41HM-105ZE	E CAPACITOR
	C716	QER41HM-105ZE	E CAPACITOR
	C717	QER41HM-105ZE	E CAPACITOR
	C718	NCB31EK-103A	CAPACITOR
	C719	QER41HM-105ZE	E CAPACITOR
	C720	QER40JM-476ZE	E CAPACITOR
	C721	NCB31EK-103A	CAPACITOR
	C722	NCB31EK-103A	CAPACITOR
	C723	QCVB1CM-103	CAPACITOR
	C724	QER40JM-476ZE	E CAPACITOR
	C725	NCB31EK-103A	CAPACITOR
	C726	NCS31HJ-121A	CAPACITOR
	C727	NCS31HJ-121A	CAPACITOR

*⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	C728	QCSA1HJ-331	CAPACITOR
	C729	NCB31EK-103A	CAPACITOR
	C730	NCS31HJ-560A	CAPACITOR
	C731	NCS31HJ-151A	CAPACITOR
	C732	NCS31HJ-271A	CAPACITOR
	C733	NCB31EK-103A	CAPACITOR
	C734	NCB31EK-103A	CAPACITOR
	C735	NCS31HJ-680A	CAPACITOR
	C736	NCS31HJ-360A	CAPACITOR
	C738	NCS31HJ-390A	CAPACITOR
	C739	QER40JM-476ZE	E CAPACITOR
	C740	NCB31EK-103A	CAPACITOR
	C741	NCS31HJ-180A	CAPACITOR
	C742	NCS31HJ-390A	CAPACITOR
	C743	NCS31HJ-100A	CAPACITOR
	C744	NCS31HJ-120A	CAPACITOR
	C745	NCB31EK-103A	CAPACITOR
	C747	NCS31HJ-560A	CAPACITOR
	C748	NCS31HJ-150A	CAPACITOR
	C749	NCS31HJ-270A	CAPACITOR
	C750	NCS31HJ-120A	CAPACITOR
	C751	NCS31HJ-120A	CAPACITOR
	C752	NCB31EK-103A	CAPACITOR
	C753	NCS31HJ-470A	CAPACITOR
	C754	NCB31EK-103A	CAPACITOR
	C755	NCB31EK-103A	CAPACITOR
	C756	QER41HM-105ZE	E CAPACITOR
	C757	QER41HM-105ZE	E CAPACITOR
	C759	NCB31EK-103A	CAPACITOR
	C760	QCYA1EK-273	CAPACITOR
	C761	NCB31EK-103A	CAPACITOR
	C762	QER41CM-476ZE	E CAPACITOR
	C763	NCB31EK-103A	CAPACITOR
	C764	QER41HM-105ZE	E CAPACITOR
	C765	NCS31HJ-470A	CAPACITOR
	C766	NCB31EK-103A	CAPACITOR
	C767	NCB31EK-103A	CAPACITOR
	C770	NCB31EK-103A	CAPACITOR
	C774	NCB31EK-103A	CAPACITOR
	C775	QER40JM-476ZE	E CAPACITOR
	C776	NCB31EK-103A	CAPACITOR
	C777	NCB31EK-103A	CAPACITOR
	C778	NCB31EK-103A	CAPACITOR
	C779	NCS31HJ-121A	CAPACITOR
	C780	NCS31HJ-121A	CAPACITOR
	C781	NCB31EK-103A	CAPACITOR
	C782	NCS31HJ-560A	CAPACITOR
	C784	NCB31EK-103A	CAPACITOR
	C785	NCB31EK-103A	CAPACITOR
	C787	NCB31EK-103A	CAPACITOR
	C788	NCB31EK-103A	CAPACITOR
	C789	QCFA1EZ-104	CAPACITOR
	C791	NCB31EK-103A	CAPACITOR
	C792	QEPA1EM-475ZE	NP E CAPACITOR
	C793	QEPA1EM-475ZE	NP E CAPACITOR
	C794	QER41HM-104ZE	CAPACITOR
	C795	NCB31EK-103A	CAPACITOR
	C796	QCFA1EZ-104	CAPACITOR
	C797	NCB31EK-103A	CAPACITOR
	C798	NCB31HK-122A	CAPACITOR
	C901	QER41AM-476ZE	E CAPACITOR
	C902	QER41AM-336ZE	E CAPACITOR
	C903	QER41CM-106ZE	E CAPACITOR
	C904	NCB31EK-103A	CAPACITOR
	C905	NCB31EK-103A	CAPACITOR

*⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	C906	NCB31HK-182A	CAPACITOR
	C907	NCB31EK-272A	CAPACITOR
	C908	NCS31HJ-680A	CAPACITOR
	C909	NCB31EK-103A	CAPACITOR
	C910	NCB31EK-103A	CAPACITOR
	C1001	QEE81EM-475	TANTAL CAPACITOR
	L1	YU40248-470KY	COIL
	L2	YU40248-470KY	COIL
	L3	YU40248-470KY	COIL
	L4	YU40248-470KY	COIL
	L5	YU40248-470KY	COIL
	L12	YU40248-470KY	COIL
	L15	YU40248-470KY	COIL
	L16	YU40248-470KY	COIL
	L18	YU40248-470KY	COIL
	L19	YU40248-470KY	COIL
	L21	PU58201-180J	COIL
	L301	YU40248-470KY	COIL
	L302	YU40248-470KY	COIL
	L303	PU54710-822	COIL
	L304	PU55843-150J	COIL
	L306	PU53618-821J	COIL
	L307	PU54710-222	COIL
	L308	PU53618-471J	COIL
	L309	YU40248-470KY	COIL
	L310	YU40248-470KY	COIL
	L601	PU56181-470	COIL
	L701	YU40248-470KY	COIL
	L702	YU40248-470KY	COIL
	L703	PU58201-181J	COIL
	L704	PU58201-330J	COIL
	L705	PU58201-820J	COIL
	L706	PU58201-101J	COIL
	L707	PU58201-330J	COIL
	L708	PU58201-560J	COIL
	L709	PU58201-390J	COIL
	L710	PU58201-221J	COIL
	L711	PU58201-100J	COIL
	L712	PU58201-220J	COIL
	L713	YU40248-470KY	COIL
	L714	PU58201-470J	COIL
	L716	PU58201-560J	COIL
	L717	PU58201-220J	COIL
	L719	YU40248-470KY	COIL
	L720	PU58201-5R6K	COIL
	L722	PU58201-560J	COIL
	L723	YU40248-470KY	COIL
	L724	PU58201-221J	COIL
	L725	PU58201-150J	COIL
	L726	YU40248-470KY	COIL
	L901	PU53618-821J	COIL
	L902	YU40248-470KY	COIL
	L903	YU40208	TRAP
		OR YU40208-P	TRAP
	EQ1	YU40824	EQUALIZER
		OR YU40824-R	EQUALIZER
	EQ2	YU40889	EQUALIZER
	LPF2	YU41047	LOW PASS FILTER
		OR YU41047-R	LOW PASS FILTER
	LPF3	YU40822	LOW PASS FILTER
	LPF4	YU40823	LOW PASS FILTER
		OR YU40823-R	LOW PASS FILTER

*⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	LPF301	YU40825	LOW PASS FILTER
	OR	YU40825-P	LOW PASS FILTER
	BPF301	YU40826	BAND PASS FILTER
	OR	YU40826-P	BAND PASS FILTER
	BPF302	YU40827	BAND PASS FILTER
	OR	YU40827-P	BAND PASS FILTER
	BPF901	YU40967	BAND PASS FILTER
	OR	YU40967-P	BAND PASS FILTER
	CF301	YU40830	CERAMIC FILTER
⚠	CF501	PU55812	RESONATOR
	DL301	YU40828	2H DELAY LINE
⚠	X301	YU40829	CRYSTAL RESONATOR
⚠	X401	YU40404	CRYSTAL RESONATOR
⚠	OR	YU40405	CRYSTAL RESONATOR
	DD1	YU40139	SWITCHING REGULATOR,REG601
	TH2	YU41057	THERMISTOR
	OR	YU41057-Y	THERMISTOR
	RY601	YU40446	RELAY
	HD1	YQ40482	HOLDER
	HD2	YQ40469-1-1	FUSE COVER
	RV1	PU56800	NYLON RIVET
	SLD1	YU40877	SHIELD CASE(1)
		YQ40469-1-1	FUSE COVER
	SLD2	YU40878	SHIELD CASE(2)
	SLD3	YU40182	BUS PLATE
	SPC1	PU59915-205	SPACER
	TP1	PU56278	TEST PIN
	TP6	YU40581-AY	CHIP TP(2125)
	TP8	YU40581-AY	CHIP TP(2125)
	TP01	PU56278	TEST PIN,TPGND
	TP10	YU40581-AY	CHIP TP(2125)
	TP21	YU40581-AY	CHIP TP(2125)
	TP25	YU40581-AY	CHIP TP(2125)
	TP26	YU40581-AY	CHIP TP(2125)
	TP27	YU40581-AY	CHIP TP(2125)
	TP31	YU40581-AY	CHIP TP(2125)
	TP32	YU40581-AY	CHIP TP(2125)
	TP33	YU40581-AY	CHIP TP(2125)
	TP34	YU40581-AY	CHIP TP(2125)
	TP51	YU40581-AY	CHIP TP(2125)
	TP52	YU40581-AY	CHIP TP(2125)
	TP301	YU40581-AY	CHIP TP(2125)
	TP303	YU40581-AY	CHIP TP(2125)
	TP401	PU56278	TEST PIN
	TP411	PU56278	TEST PIN
	TP701	PU56278	TEST PIN
	TP702	YU40581-AY	CHIP TP(2125)
	TP704	YU40581-AY	CHIP TP(2125)
	TP705	PU56278	TEST PIN
	TP706	YU40581-AY	CHIP TP(2125)
	TP707	PU56278	TEST PIN
	TP708	PU56278	TEST PIN
	TP709	PU56278	TEST PIN
	TP901	YU40581-AY	CHIP TP(2125)
	CN1	PU58250-10	CAP HOUSING
	CN2	PU58250-8	CAP HOUSING
	CN3	PU58250-20	CAP HOUSING
	CN6	YU40593-15	CAP HOUSING
	CN12	PU58655-2	CAP HOUSING
	CN13	PU58655-2	CAP HOUSING
	CN14	PU58655-8	CAP HOUSING
	CN15	PU58654-10	CAP HOUSING
	CN17	PU58655-7	CAP HOUSING
	CN18	YU40096-5	CAP HOUSING
	CN19	PU58655-2	CAP HOUSING
	CN20	PU58655-2	CAP HOUSING
⚠	CP601	ICP-F25	CIRCUIT PROTECTOR
⚠	CP602	ICP-F20	CIRCUIT PROTECTOR
⚠	HD601	PU51212	FUSE CLIP X2
⚠	F1	QMF51E2-3R15	FUSE, NOT INCL. V/S/M BOARD ASSY

8. OPERATION BOARD ASSEMBLY <02>

*⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	PWBA	YB20015C	OPERATION BOARD ASSY
	IC1	BX7644W	IC
	Q1	DTA144EF	TRANSISTOR
	Q2	DTC144EF	TRANSISTOR
	Q3	DTC144EF	TRANSISTOR
	D1	1SS133	DIODE
	D2	1SS133	DIODE
	LD1	SLN-210VC74	LE DIODE
	LD2	SLH-34MC3F	LE DIODE
	R1	QRD161J-102	RESISTOR
	R2	QRD161J-102	RESISTOR
	R3	PU59694	SLIDE VOL,HIFI REC LEVEL
	R4	QVZ3518-333	V RESISTOR,HIFI(L) REC LEVEL
	R5	QVZ3518-333	V RESISTOR,HIFI(R) REC LEVEL
	R6	QRD161J-471	RESISTOR
	R7	QVZ3515-103	V RESISTOR,IND LEVEL METER(L)
	R8	QVZ3515-103	V RESISTOR,IND LEVEL METER(R)
	R10	QRD161J-222	RESISTOR
	R11	QRD161J-222	RESISTOR
	R12	QRD161J-332	RESISTOR
	R13	QRD161J-472	RESISTOR
	R14	QRD161J-103	RESISTOR
	R15	QRD161J-222	RESISTOR
	R16	QRD161J-222	RESISTOR
	R17	QRD161J-332	RESISTOR
	R20	QRD161J-103	RESISTOR
	R21	QRD161J-103	RESISTOR
	R22	QRD161J-472	RESISTOR
	R23	QRD161J-471	RESISTOR
	R24	QRD161J-472	RESISTOR
	R30	QRD161J-223	RESISTOR
	R31	QRD161J-223	RESISTOR
	R32	QRD161J-223	RESISTOR
	R33	QRD161J-223	RESISTOR
	R34	QRD161J-223	RESISTOR
	R35	QRD161J-333	RESISTOR
	R36	QRD161J-103	RESISTOR
	R37	QRD161J-333	RESISTOR
	R39	QRD161J-333	RESISTOR
	R40	QRD161J-472	RESISTOR
	R41	QRD161J-472	RESISTOR
	R42	QRD161J-472	RESISTOR
	R43	QRD161J-472	RESISTOR
	R44	QRD161J-472	RESISTOR
	R45	QRD161J-472	RESISTOR
	R46	QRD161J-102	RESISTOR
	R47	QRD161J-472	RESISTOR
	R48	QRD161J-473	RESISTOR
	R49	QRD161J-391	RESISTOR
	C1	QER41CM-106	E CAPACITOR
	C2	QER41CM-106	E CAPACITOR
	C3	QER41CM-106	E CAPACITOR
	C4	QER41CM-106	E CAPACITOR
	C5	QER41CM-106	E CAPACITOR
	C6	QER41CM-106	E CAPACITOR
	C7	QER41CM-106	E CAPACITOR
	C8	QFJ41HJ-223	M CAPACITOR
	C9	QFJ41HJ-223	M CAPACITOR
	S1	PU58027	SWITCH(TACT)
	S2	PU58027	SWITCH(TACT)
	S3	PU58027	SWITCH(TACT)
	S4	PU58027	SWITCH(TACT)
	S5	PU58027	SWITCH(TACT)
	S6	PU58027	SWITCH(TACT)
	S7	PU56384	SWITCH(TACT)
	S8	PU56384	SWITCH(TACT)
	S9	PU56384	SWITCH(TACT)
	S10	YU40110	SLIDE SW.
	S11	YU40111	SLIDE SW.
	S12	YU40111	SLIDE SW.
	S13	YU40111	SLIDE SW.
	S14	PU58027	SWITCH(TACT)
	S15	PU55583	SWITCH(SLIDE)
	S16	PU58027	SWITCH(TACT)
	S17	PU58027	SWITCH(TACT)
	TC1	PU59517	LCD COUNTER
	SPC1	PU59915-106	SPACER
	CN1	PU58655-13	CAP HOUSING
	CN2	PU58655-11	CAP HOUSING
	CN3	PU58655-6	CAP HOUSING
	CN4	PU58655-9	CAP HOUSING
	CN5	PU58655-2	CAP HOUSING
	CN6	PU58655-2	CAP HOUSING
	CN7	PU58655-3	CAP HOUSING

9. AUDIO BOARD ASSEMBLY <03>

*⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	PWBA	YB20014C	AUDIO BOARD ASSY
	IC1	AN3994NS	IC
	IC2	10VT30	IC
	IC3	AN3926S	IC
	IC4	AN6299NC	IC
	IC5	VC2024A	IC
	IC7	HA11752MP	IC
	IC8	5VT16	IC
⚠	Q1	2SD1450S,T	TRANSISTOR
	Q2	FMW3	TRANSISTOR
	Q3	DTC124EK	TRANSISTOR
	Q4	DTC124EK	TRANSISTOR
	Q5	FMW3	TRANSISTOR
	Q6	DTC144EK	TRANSISTOR
	Q7	DTC124EK	TRANSISTOR
⚠	Q8	2SD1330S,T	TRANSISTOR
	Q9	DTC124EK	TRANSISTOR
	Q10	DTC124EK	TRANSISTOR
	Q12	DTA124EK	TRANSISTOR
	Q13	DTC124EK	TRANSISTOR
	Q14	DTC124EK	TRANSISTOR
	Q15	2SD1450S,T	TRANSISTOR
	Q16	DTC124EK	TRANSISTOR
	Q17	2SA1037K	TRANSISTOR
	Q18	2SB643Q	TRANSISTOR
	Q19	2SD638Q	TRANSISTOR
	Q20	2SD1328S,T	TRANSISTOR
	Q21	2SA1037K(S)	TRANSISTOR
	Q22	DTC124EK	TRANSISTOR
	Q23	DTC124EK	TRANSISTOR
	Q24	2SC2412K	TRANSISTOR
	Q25	2SC2412K	TRANSISTOR
	Q26	2SA1037K	TRANSISTOR
	Q27	DTC124EK	TRANSISTOR
	Q29	FMW3	TRANSISTOR
	Q30	FMG1	TRANSISTOR
	Q31	FMG1	TRANSISTOR
	Q32	FMG1	TRANSISTOR
	Q33	FMC2	TRANSISTOR
	Q34	DTA124EK	TRANSISTOR
	Q35	DTC124EK	TRANSISTOR
	Q36	DTC124EK	TRANSISTOR
	Q37	DTC124EK	TRANSISTOR
	Q38	FMC2	TRANSISTOR
	D1	RD11M-T2B2	ZENER DIODE
	D2	1SS133	DIODE
	D3	LTZ-MR15	ZENER DIODE
	D4	RD11M-T2B2	ZENER DIODE
	D7	1SS133	DIODE
	D8	RD11M-T1B2	ZENER DIODE
	R1	QRSA08J-103YN	RESISTOR
	R2	QRSA08J-333YN	RESISTOR
	R3	QRSA08J-102YN	RESISTOR
	R4	QRSA08J-101YN	RESISTOR
	R6	QRSA08J-273YN	RESISTOR
	R7	QVZ3531-333	V RESISTOR,BIAS LEVEL
	R8	QRSA08J-102YN	RESISTOR
	R9	QRSA08J-102YN	RESISTOR
	R10	QRSA08J-102YN	RESISTOR
	R11	QRSA08J-432YN	RESISTOR
	R13	QRSA08J-124YN	RESISTOR
	R14	QRSA08J-121YN	RESISTOR
	R15	QVZ3531-331	V RESISTOR,NA PB LEVEL
	R16	QRSA08J-393YN	RESISTOR
	R17	QRSA08J-100YN	RESISTOR
	R18	QRSA08J-333YN	RESISTOR
	R19	QRSA08J-103YN	RESISTOR
	R20	QRSA08J-223YN	RESISTOR
	R21	QRSA08J-393YN	RESISTOR
	R22	QRSA08J-223YN	RESISTOR
	R23	QRSA08J-103YN	RESISTOR
	R24	QRSA08J-103YN	RESISTOR
	R25	QRSA08J-392YN	RESISTOR
	R26	QRSA08J-102YN	RESISTOR
	R27	QRSA08J-102YN	RESISTOR

*⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	R28	QRSA08J-102YN	RESISTOR
	R29	QRSA08J-681YN	RESISTOR
	R30	QRSA08J-333YN	RESISTOR
	R31	QRSA08J-332YN	RESISTOR
	R32	QRSA08J-332YN	RESISTOR
	R33	QRSA08J-681YN	RESISTOR
	R34	QRSA08J-333YN	RESISTOR
	R35	QRSA08J-102YN	RESISTOR
	R36	QRSA08J-102YN	RESISTOR
	R37	QRSA08J-473YN	RESISTOR
	R38	QRSA08J-102YN	RESISTOR
	R39	QRSA08J-102YN	RESISTOR
	R40	QRSA08J-223YN	RESISTOR
	R41	QRSA08J-223YN	RESISTOR
	R42	QRSA08J-102YN	RESISTOR
	R43	QRSA08J-103YN	RESISTOR
	R44	QRSA08J-123YN	RESISTOR
	R45	QRSA08J-562YN	RESISTOR
	R46	QRSA08J-102YN	RESISTOR
	R47	QRSA08J-102YN	RESISTOR
	R48	QRSA08J-225YN	RESISTOR
	R49	QRSA08J-154YN	RESISTOR
	R50	QRSA08J-331YN	RESISTOR
	R51	QRSA08J-102YN	RESISTOR
	R52	QRSA08J-332YN	RESISTOR
	R53	QRSA08J-332YN	RESISTOR
	R54	QRSA08J-123YN	RESISTOR
	R55	QRSA08J-154YN	RESISTOR
	R56	QRSA08J-562YN	RESISTOR
	R57	QRSA08J-103YN	RESISTOR
	R58	QRSA08J-103YN	RESISTOR
	R59	QRSA08J-223YN	RESISTOR
	R60	QRSA08J-181YN	RESISTOR
	R61	QVZ3531-332	V RESISTOR,AUDIO EE LEVEL (R)
	R62	QRSA08J-181YN	RESISTOR
	R63	QVZ3531-332	V RESISTOR,AUDIO EE LEVEL (L)
	R64	QRSA08J-181YN	RESISTOR
	R65	QRSA08J-473YN	RESISTOR
	R66	QRSA08J-223YN	RESISTOR
	R67	QRSA08J-225YN	RESISTOR
	R68	QRSA08J-333YN	RESISTOR
	R69	QRSA08J-182YN	RESISTOR
	R70	QRSA08J-392YN	RESISTOR
	R71	QRSA08J-682YN	RESISTOR
	R72	QRSA08J-821YN	RESISTOR
	R73	QRSA08J-123YN	RESISTOR
	R74	QRSA08J-392YN	RESISTOR
	R75	QRSA08J-153YN	RESISTOR
	R76	QRSA08J-473YN	RESISTOR
	R77	QRSA08J-473YN	RESISTOR
	R78	QRSA08J-473YN	RESISTOR
	R79	QRSA08J-153YN	RESISTOR
	R80	QRSA08J-392YN	RESISTOR
	R81	QRSA08J-123YN	RESISTOR
	R82	QRSA08J-821YN	RESISTOR
	R83	QRSA08J-682YN	RESISTOR
	R84	QRSA08J-392YN	RESISTOR
	R85	QRSA08J-182YN	RESISTOR
	R86	QRSA08J-225YN	RESISTOR
	R87	QRSA08J-333YN	RESISTOR
	R89	QRSA08J-392YN	RESISTOR
	R90	QRSA08J-563YN	RESISTOR
	R91	QRSA08J-223YN	RESISTOR
	R92	QRSA08J-473YN	RESISTOR
	R93	QRSA08J-123YN	RESISTOR
	R94	QRSA08J-123YN	RESISTOR
	R95	QRSA08J-105YN	RESISTOR
	R96	QRSA08J-0R0Y	RESISTOR
	R97	QRSA08J-103YN	RESISTOR
	R98	QRSA08J-103YN	RESISTOR
	R99	QRSA08J-103YN	RESISTOR
	R100	QRSA08J-272YN	RESISTOR
	R101	QRSA08J-562YN	RESISTOR
	R102	QRSA08J-272YN	RESISTOR
	R103	QRSA08J-562YN	RESISTOR
	R104	QRSA08J-221YN	RESISTOR
	R105	QRSA08J-105YN	RESISTOR
	R106	QVZ3531-222	V RESISTOR,HIFI(L) PB LEVEL
	R107	QVZ3531-222	V RESISTOR,HIFI(R) PB LEVEL
	R108	QRSA08J-272YN	RESISTOR
	R110	QRSA08J-102YN	RESISTOR
	R111	QRSA08J-102YN	RESISTOR
	R112	QRSA08J-102YN	RESISTOR
	R113	QRSA08J-562YN	RESISTOR
	R114	QRSA08J-222YN	RESISTOR
	R115	QRSA08J-102YN	RESISTOR
	R116	QRSA08J-102YN	RESISTOR
	R117	QVZ3531-223	V RESISTOR,FM REC
	R118	QRSA08J-103YN	RESISTOR
	R119	QRSA08J-104YN	RESISTOR
	R120	QRSA08J-102YN	RESISTOR
	R121	QRSA08J-104YN	RESISTOR
	R122	QRSA08J-152YN	RESISTOR
	R123	QRSA08J-220YN	RESISTOR
	R124	QRSA08J-332YN	RESISTOR
	R125	QRSA08J-472YN	RESISTOR
	R126	QRSA08J-332YN	RESISTOR
	R127	QRSA08J-152YN	RESISTOR
	R128	QRSA08J-220YN	RESISTOR
	R129	QRSA08J-102YN	RESISTOR
	R130	QRSA08J-271YN	RESISTOR
	R131	QRSA08J-272YN	RESISTOR
	R132	QRSA08J-562YN	RESISTOR
	R133	QRSA08J-562YN	RESISTOR
	R134	QRSA08J-102YN	RESISTOR
	R135	QRSA08J-102YN	RESISTOR
	R136	QRSA08J-102YN	RESISTOR
	R137	QRSA08J-102YN	RESISTOR
	R138	QRSA08J-561YN	RESISTOR
	R139	QRSA08J-272YN	RESISTOR
	R140	QRSA08J-561YN	RESISTOR
	R141	QRSA08J-472YN	RESISTOR
	R142	QRSA08J-472YN	RESISTOR
	R143	QRSA08J-223YN	RESISTOR
	R144	QRSA08J-561YN	RESISTOR
	R145	QRSA08J-562YN	RESISTOR
	R147	QRSA08J-224YN	RESISTOR
	R148	QRSA08J-821YN	RESISTOR
	R149	QRSA08J-681YN	RESISTOR
	R150	QRSA08J-223YN	RESISTOR
	R151	QRSA08J-223YN	RESISTOR
	R152	QRSA08J-681YN	RESISTOR
	R153	QRSA08J-681YN	RESISTOR
	R154	QRSA08J-392YN	RESISTOR
	R155	QRSA08J-392YN	RESISTOR
	R156	QRSA08J-100YN	RESISTOR
	R157	QRSA08J-100YN	RESISTOR
	R159	QRSA08J-822YN	RESISTOR
	R160	QRSA08J-0R0Y	RESISTOR
	R161	QRSA08J-273YN	RESISTOR
	R162	QRSA08J-223YN	RESISTOR
	R163	QRSA08J-223YN	RESISTOR
	R164	QRSA08J-223YN	RESISTOR
	R166	QRD162J-0R0	RESISTOR
	R167	QRSA08J-102YN	RESISTOR
	B1	QRSA08J-0R0Y	RESISTOR
	B3	QRSA08J-0R0Y	RESISTOR
	B4	QRSA08J-0R0Y	RESISTOR
	B5	QRSA08J-0R0Y	RESISTOR
	B6	QRSA08J-0R0Y	RESISTOR
	C1	QER40JM-476ZE	E CAPACITOR
	C3	QER40JM-336ZE	E CAPACITOR
	C4	QER40JM-226ZE	E CAPACITOR
	C5	QER41HM-225ZE	E CAPACITOR
	C6	QCYA1EK-223	CAPACITOR
	C8	QER41HM-105ZE	E CAPACITOR
	C9	QER41CM-476ZE	E CAPACITOR
	C10	PU58285-223J	PP CAPACITOR
	C11	QER41CM-106ZE	E CAPACITOR
	C12	QFN41HJ-471	M CAPACITOR
	C13	QER41CM-476ZE	E CAPACITOR
	C14	QER41HM-105ZE	E CAPACITOR
	C15	QER41VM-475ZE	E CAPACITOR
	C17	QFN41HJ-223	M CAPACITOR
	C18	QER41CM-106ZE	E CAPACITOR
	C19	QER41HM-474ZE	E CAPACITOR
	C20	QCSA1HJ-681	CAPACITOR
	C22	QCSA1HJ-122	CAPACITOR
	C23	QCYA1EK-223	CAPACITOR
	C24	QCYA1EK-183	CAPACITOR
	C25	QCYA1HK-472	CAPACITOR
	C26	QER41CM-106ZE	E CAPACITOR
	C27	QER40JM-226ZE	E CAPACITOR
	C28	QER41HM-225ZE	E CAPACITOR
	C29	QER41HM-225ZE	E CAPACITOR
	C30	QER40JM-226ZE	E CAPACITOR
	C31	QER41HM-335ZE	E CAPACITOR
	C32	QCYA1HK-332	CAPACITOR
	C33	QER41HM-335ZE	E CAPACITOR
	C34	QCYA1HK-332	CAPACITOR
	C35	QER41CM-106ZE	E CAPACITOR
	C36	QCYA1HK-103	CAPACITOR
	C37	QER41CM-476ZE	E CAPACITOR
	C38	QER41CM-476ZE	E CAPACITOR
	C39	QER40JM-226ZE	E CAPACITOR
	C40	QER41CM-106ZE	E CAPACITOR
	C41	QCSA1HJ-122	CAPACITOR
	C42	QCYA1EK-183	CAPACITOR
	C43	QER41CM-106ZE	E CAPACITOR
	C44	QER41CM-106ZE	E CAPACITOR
	C45	QER41CM-106ZE	E CAPACITOR
	C46	QER41CM-106ZE	E CAPACITOR
	C47	QER41HM-225ZE	E CAPACITOR
	C48	QER40JM-107ZE	E CAPACITOR
	C49	QEPA1VM-225ZE	NP E CAPACITOR
	C50	QEPA1VM-225	NP E CAPACITOR
	C51	QER41CM-106ZE	E CAPACITOR
	C52	QER40JM-226ZE	E CAPACITOR
	C53	QER40JM-336ZE	E CAPACITOR
	C54	QER41CM-106ZE	E CAPACITOR
	C55	QCSA1HJ-821	CAPACITOR
	C56	QCYA1HK-103	CAPACITOR
	C57	QCSA1HJ-151	CAPACITOR
	C58	QER41AM-336ZE	E CAPACITOR
	C59	QER40JM-226ZE	E CAPACITOR
	C60	QCYA1HK-153	CAPACITOR
	C61	QER41HM-225ZE	E CAPACITOR
	C62	QER41AM-336ZE	E CAPACITOR
	C63	QER41AM-336ZE	E CAPACITOR
	C64	QCYA1HK-153	CAPACITOR
	C65	QER41CM-476ZE	E CAPACITOR
	C66	QER41AM-336ZE	E CAPACITOR
	C67	QCYA1HK-153	CAPACITOR
	C68	QER41AM-336ZE	E CAPACITOR
	C69	QER41HM-225	E CAPACITOR
	C70	QCYA1HK-153	CAPACITOR
	C71	QER40JM-226ZE	E CAPACITOR
	C72	QER41AM-336ZE	E CAPACITOR
	C73	QCSA1HJ-151	CAPACITOR
	C74	QER41CM-106ZE	E CAPACITOR
	C75	QCYA1HK-103	CAPACITOR
	C76	QCSA1HJ-821	CAPACITOR
	C77	QER40JM-226ZE	E CAPACITOR
	C78	QER40JM-336ZE	E CAPACITOR
	C79	QER41CM-106ZE	E CAPACITOR
	C80	QCYA1EK-223	CAPACITOR
	C81	QER41CM-106ZE	E CAPACITOR
	C82	QER41HM-225ZE	E CAPACITOR
	C83	QCSA1HJ-101	CAPACITOR
	C84	QER41CM-476ZE	E CAPACITOR
	C85	QCYA1HK-102	CAPACITOR
	C86	QCYA1HK-102	CAPACITOR
	C87	QER40GM-227	E CAPACITOR
	C88	QER40GM-227	E CAPACITOR
	C89	QER40JM-107ZE	E CAPACITOR
	C90	QCYA1HK-103	CAPACITOR
	C91	QER41CM-106ZE	E CAPACITOR
	C92	QER41CM-106ZE	E CAPACITOR
	C93	QER40JM-107ZE	E CAPACITOR
	C94	QER41CM-106ZE	E CAPACITOR
	C95	QCYA1HK-222	CAPACITOR
	C96	QER41CM-106ZE	E CAPACITOR
	C97	QCYA1HK-222	CAPACITOR
	C98	QCYA1EK-223	CAPACITOR
	C99	QCSA1HJ-101	CAPACITOR
	C100	QCYA1EK-223	CAPACITOR
	C101	QCYA1HK-102	CAPACITOR
	C102	QCYA1HK-222	CAPACITOR
	C103	QCYA1HK-103	CAPACITOR
	C104	QCYA1HK-103	CAPACITOR
	C105	QCYA1HK-102	CAPACITOR
	C106	QCYA1HK-122	CAPACITOR
	C107	QCYA1HK-103	CAPACITOR
	C108	QCYA1HK-103	CAPACITOR
	C109	QCYA1HK-103	CAPACITOR
	C110	QER41CM-476ZE	E CAPACITOR
	C111	QCYA1HK-103	CAPACITOR
	C112	QCYA1HK-102	CAPACITOR
	C113	QCYA1HK-102	CAPACITOR
	C114	QCSA1HJ-220	CAPACITOR
	C116	QCYA1HK-103	CAPACITOR
	C117	QER40JM-107ZE	E CAPACITOR
	C118	QER40JM-107ZE	E CAPACITOR
	C119	QCYA1HK-103	CAPACITOR
	C120	QER41HM-224ZE	E CAPACITOR
	C121	QCSA1HJ-331	CAPACITOR
	C122	QCSA1HJ-390	CAPACITOR
	C123	QCYA1HK-102	CAPACITOR
	C124	QCYA1HK-103	CAPACITOR
	C125	QER40JM-107ZE	E CAPACITOR
	C126	QCSA1HJ-221	CAPACITOR
	C127	QCSA1HJ-221	CAPACITOR
	C128	QCSA1HJ-561	CAPACITOR
	C129	QCSA1HJ-561	CAPACITOR
	C130	QCYA1HK-103	CAPACITOR
	C131	QCYA1HK-103	CAPACITOR
	C132	QCYA1HK-103	CAPACITOR

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	C133	QCYA1HK-103	CAPACITOR
	C134	QCYA1HK-152	CAPACITOR
	C135	QCYA1HK-152	CAPACITOR
	C138	QCS11HJ-181	CAPACITOR
	C139	QER41HM-104ZE	E CAPACITOR
	L1	PU54710-562	COIL
	L2	PU53223-221J	PEAKING COIL
⚠	L3	PU53617	OSC COIL
	L4	PU58697-152J	PEAKING COIL
	L5	PU58697-152J	PEAKING COIL
	L6	PU58697-182J	COIL
	L7	PU58697-182J	COIL
	L8	PU53223-101J	PEAKING COIL
	L9	PU53223-101J	PEAKING COIL
	L10	PU53223-221J	PEAKING COIL
	L11	PU53223-101J	PEAKING COIL
	L12	PU59152-1R2K	PEAKING COIL
	L13	PU53223-101J	PEAKING COIL
	L14	PU53223-221J	PEAKING COIL
	L15	PU53223-101J	PEAKING COIL
	L16	PU56175	S.TRANS
	L17	PU53223-101J	PEAKING COIL
	BPF1	PU60069	BAND PASS FILTER
	BPF2	PU60070	BAND PASS FILTER
	CL1	PU59613	WIRE CLAMP
	SLD1	PU59764	SHIELD CASE
	SLD2	PU59765-1-1	SHIELD PLATE
	SLD3	YU40142	SHIELD CASE(1)
	SLD4	YU40143	SHIELD CASE(2)
	SLD5	YU40817	INSULATOR
	TP1	PU56278	TEST PIN
	TP2	PU56278	TEST PIN
	TP3	PU56278	TEST PIN
	TP4	PU56278	TEST PIN
	TP5	PU56278	TEST PIN
	TP6	PU56278	TEST PIN
	CN1	PU58654-6	CAP HOUSING
	CN3	PU58654-2	CAP HOUSING
	CN7	PU58253-04	BOARD HOUSING
	CN8	PU58251-20	CAP HOUSING
	CN9	PU58251-8	CAP HOUSING
	CN10	PU58654-2	CAP HOUSING
	CN11	PU58654-3	CAP HOUSING

10. AUDIO/VIDEO CONNECTOR BOARD ASSY <04>

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	PWBA	YB40029A-01	A/V CONNECTOR BOARD ASSY
	R1	QRD162J-750	RESISTOR
	R3	QRD162J-750	RESISTOR
	SLD1	YU41072	SHIELD
	J01	YU40150	A/V INPUT CONN.
	J02	YU40119	CONNECTOR
	CN1	PU58654-10	CN WFR
	CN2	PU58654-4	CAP HOUSING
	CN3	PU58654-8	CAP HOUSING

11. MIC BOARD ASSEMBLY <05>

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	PWBA	YB30007A-01	MIC BOARD ASSY
	IC1	AN8005	IC
	IC2	10VT28	IC
	IC3	9VT08	IC
	D1	1SS133	DIODE
	D2	1SS133	DIODE
	R1	QRD162J-123	RESISTOR
	R2	QRD162J-123	RESISTOR
	R3	QRD162J-103	RESISTOR
	R4	QRD162J-563	RESISTOR
	R5	QRD162J-123	RESISTOR
	R6	QRD162J-333	RESISTOR
	R7	QVZ3531-683	V RESISTOR,AF
	R8	QRD162J-121	RESISTOR
	C1	QER41HM-105	E CAPACITOR
	C2	QFJ41HJ-122	M CAPACITOR
	C3	QER41HM-105	E CAPACITOR
	C4	QFJ41HJ-122	M CAPACITOR
	C5	QER40JM-476	E CAPACITOR
	C6	QEPA1HM-104	NP E CAPACITOR
	C7	QEPA1HM-104	NP E CAPACITOR
	C8	QER40JM-476	E CAPACITOR
	C9	QER41EM-335	E CAPACITOR
	C10	QER41CM-106	E CAPACITOR
	C11	QER41CM-226	E CAPACITOR
	C12	QER40JM-336	E CAPACITOR
	SLD1	PU36301	SHIELD CASE
	SLD2	PU36302	SHIELD PLATE
	J001	YU40144	MIC JACK
	J002	PU59711	MIC JACK
	CN1	PU58654-5	CAP HOUSING

12. START SENSOR BOARD ASSEMBLY <06>

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	PWBA	PU59634B	START SENSOR BOARD ASSY
	PT1	TPS605	PHOTO TRANSISTOR
	C1	QCVC1CN-103	CAPACITOR

13. END SENSOR BOARD ASSEMBLY <07>

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	PWBA	PU58479C	END SENSOR BOARD ASSY
	PT1	TPS605	PHOTO TRANSISTOR
	C1	QCVC1CN-103	CAPACITOR

14. FULL ERASE HEAD BOARD ASSEMBLY <08>

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	PWBA	PU59703B	FE HEAD BOARD ASSY
	IC1	3VT03	IC
	C1	QER41CM-106	E CAPACITOR
	C2	QFN41HJ-333	M CAPACITOR

15. MOTOR DRIVE AMP BOARD ASSEMBLY <09>

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	PWBA	YB30006B	MDA BOARD ASSY
	IC1	AN6671K	IC
	Q1	2SA1020	TRANSISTOR
	D1	11DQ04	DIODE
	R1	QRD161J-333	RESISTOR
	R2	QRD161J-472	RESISTOR
	R3	QRD161J-102	RESISTOR
	R4	QRD161J-223	RESISTOR
	R5	QRD161J-561	RESISTOR
	R6	QRD161J-102	RESISTOR
	R7	QRD161J-102	RESISTOR
	R8	QRD161J-473	RESISTOR
	R9	QRD161J-332	RESISTOR
	R10	QRD161J-223	RESISTOR
	R11	QRD161J-223	RESISTOR
	R12	QRD161J-103	RESISTOR
	R13	QRD161J-392	RESISTOR
	R14	QRD161J-392	RESISTOR
⚠	R15	PU52108-2R2	POSITIVE THERMISTOR
	RA1	YU30036-001	RESISTOR ARRAY
	C1	QER41EM-336	E CAPACITOR
	C2	QED41EM-106	E CAPACITOR
	C3	QEU41EM-107	E CAPACITOR
	C4	QER41HM-225	E CAPACITOR
	C5	QER41HM-225	E CAPACITOR
	C6	QER41HM-225	E CAPACITOR
	C7	QER41HM-225	E CAPACITOR
	C8	QFN41HJ-333	M CAPACITOR
	C9	QFN41HJ-223	M CAPACITOR
	C10	QER41CM-106	E CAPACITOR
	L1	PU49994-120	COIL
	L2	YU40094-101K	COIL
	CN1	PU58654-13	CAP HOUSING

16. MECHACON INTERFACE BOARD ASSEMBLY <10>

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	PWBA	YB30010B	M.INT BOARD ASSY
	IC1	BX7469	IC
	IC2	BA6209U2	IC
	Q1	2SC1545A,B	TRANSISTOR
	Q2	DTC124EF	TRANSISTOR
	D1	RD5.6EB2	ZENER DIODE
	D2	RD8.2EB2	ZENER DIODE
	R1	QRD167J-102	RESISTOR
	R2	QRD167J-471	RESISTOR
	R3	QRD167J-181	RESISTOR
	R4	QRD167J-103	RESISTOR
	C1	QEPA1HM-105	NP E CAPACITOR
	C2	QFV41HJ-103M	SMF CAP
	C3	QFV41HJ-223M	SMF CAP
	C4	QEE41EM-225	TANTAL CAPACITOR
	C5	QER41CM-476	E CAPACITOR
	PHS1	GP2L09BC	PHOTO SENSOR
⚠	TH1	PU52108-1R0	POSITIVE THERMISTOR
	HD1	YQ30060-1-2	TU SENSOR HOLDER
	CN2	PU58654-2	CAP HOUSING
	CN3	PU58654-2	CAP HOUSING
	CN4	PU58654-2	CAP HOUSING
	CN5	PU58654-2	CAP HOUSING
	CN6	PU58654-2	CAP HOUSING
	CN7	PU58654-4	CAP HOUSING

17. TRACKING VR BOARD ASSEMBLY <11>

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	PWBA	YB40008A	TRACKING VR BOARD ASSY
	VR1	YU40117	V RESISTOR,TRK

18. Y/C COMB BOARD ASSEMBLY <13>

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	PWBA	YB20120A-01	Y/C COMB BOARD ASSY
	IC1	VC2063FS	IC
	Q1	2SA1576(QR)	TRANSISTOR
	Q2	2SC4081(QR)	TRANSISTOR
	Q3	2SA1576(QR)	TRANSISTOR
	Q4	2SC4081(QR)	TRANSISTOR
	R1	NRSA63J-391N	RESISTOR
	R2	NRSA63J-391N	RESISTOR
	R3	NRSA63J-391N	RESISTOR

*⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	R4	NRSA63J-391N	RESISTOR
	R5	NVP1301-473N	V RESISTOR, 2H DL COLOR 1
	R6	NRSA63J-223N	RESISTOR
	R7	NVP1301-473N	V RESISTOR, 4H DL COLOR1
	R8	NRSA63J-223N	RESISTOR
	R9	NRSA63J-102N	RESISTOR
	R11	NVP1301-471N	V RESISTOR, EXT COMP Y LEVEL
	R12	NRSA63J-391N	RESISTOR
	R13	NRSA63J-223N	RESISTOR
	R14	NRSA63J-223N	RESISTOR
	R15	NRSA63J-102N	RESISTOR
	R16	NRSA63J-102N	RESISTOR
	R17	NRSA63J-102N	RESISTOR
	R18	NRSA63J-821N	RESISTOR
	R19	NRSA63J-102N	RESISTOR
	R20	NRSA63J-102N	RESISTOR
	R21	NRSA63J-102N	RESISTOR
	R22	NVP1301-472N	V RESISTOR,Y-COMB 1
	R23	NRSA63J-223N	RESISTOR
	R24	NVP1301-223N	V RESISTOR,Y-COMB 2
	R25	NRSA63J-272N	RESISTOR
	R26	NRSA63J-392N	RESISTOR
	R27	NRSA63J-222N	RESISTOR
	R28	NRSA63J-122N	RESISTOR
	R29	NRSA63J-473N	RESISTOR
	R30	NRSA63J-473N	RESISTOR
	R31	NRSA63J-561N	RESISTOR
	R32	NRSA63J-561N	RESISTOR
	R33	NVP1301-471N	V RESISTOR, Y— COMB 3
	R34	NRSA63J-181N	RESISTOR
	C1	NCB31EK-103A	CAPACITOR
	C2	QCYA1HK-104	CAPACITOR
	C3	QEF80JM-476	TANTAL CAPACITOR
	C4	NCB31EK-103A	CAPACITOR
	C5	NCS31HJ-101A	CAPACITOR
	C6	NCB31EK-103A	CAPACITOR
	C7	NCS31HJ-101A	CAPACITOR
	C8	NCB31EK-103A	CAPACITOR
	C9	QEF81CM-106	TANTAL CAPACITOR
	C11	NCB31EK-103A	CAPACITOR
	C12	NCB31EK-103A	CAPACITOR
	C14	NCB31EK-103A	CAPACITOR
	C15	NCB31EK-103A	CAPACITOR
	C16	NCB31EK-103A	CAPACITOR
	C17	NCS31HJ-101A	CAPACITOR
	C18	NCS31HJ-470A	CAPACITOR
	C19	NCB31EK-103A	CAPACITOR
	C20	QCVB1CM-103	CAPACITOR
	L1	PU58201-8R2K	COIL
	L2	YU40867	COIL, 2H DL COLOR 2
	L3	PU58201-8R2K	COIL
	L4	YU40867	COIL, 4H DL COLOR2
	L5	YU40248-470KY	COIL
	EQ1	YU40863	EQUALIZER
	EQ2	YU40864	EQUALIZER
	BPF1	YU40866-2	BAND PASS FILTER
	OR	YU40866-2-P	BAND PASS FILTER
	BPF2	YU41020	BAND PASS FILTER
	OR	YU41020-P	BAND PASS FILTER
	DL1	YU40862	DELAY LINE
	TH1	ERT-D2FHL332S	THERMISTOR
	TH2	ERT-D2FHL102S	THERMISTOR
	BKT1	YQ30328	Y/C COMB BKT

*⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	TP1	YU40581-AY	CHIP TP(2125)
	TP2	YU40581-AY	CHIP TP(2125)
	TP3	YU40581-AY	CHIP TP(2125)
	TP4	YU40581-AY	CHIP TP(2125)
	CN1	YU40095-8	CAP HOUSING

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19. MODE SENSOR BOARD ASSEMBLY <17>

*⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	PWBA	PUS37230B	MODE SENS. BOARD ASSY
	D1	GL430	EMITTING DIODE
	D2	GL430	EMITTING DIODE
	R1	QRD161J-222	RESISTOR
	BKT1	PQ30978	MODE SENSOR BRAKET

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20. HEAD PHONES BOARD ASSEMBLY <18>

*⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	PWBA	YB40014B	HEAD PHONE BOARD ASSY
	Q1	DTC124EF	TRANSISTOR
	Q2	DTC124EF	TRANSISTOR
	R1	QRD167J-121	RESISTOR
	R2	QRD167J-121	RESISTOR
	R3	QRD167J-334	RESISTOR
	R4	QRD161J-562	RESISTOR
	J1	PU59697	H.PHONE JACK
	J2	YU40115	REMOCON JACK

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21. CTL SUB (1) BOARD ASSEMBLY <21>

*⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	PWBA	YB20167A1	CTL SUB (1) BOARD ASSY
	IC1	UPD4011BG	SOP IC
	Q1	2SC2412K	TRANSISTOR
	D2	DAP202K	C.DIODE ARRAY
	D3	1SS133	DIODE
	D4	DAN202K	DIODE
	R1	QRSA08J-333YN	RESISTOR
	R2	QRSA08J-104YN	RESISTOR
	R3	QRSA08J-333YN	RESISTOR
	B1	QRSA08J-0R0Y	RESISTOR
	B2	QRSA08J-0R0Y	RESISTOR
	B3	QRSA08J-0R0Y	RESISTOR
	C1	QCYA1HK-332	CAPACITOR
	C2	QCYA1HK-103	CAPACITOR

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*⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION

22. CTL SUB (2) BOARD ASSEMBLY <22>

*⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	PWBA	YB20167A2	CTL SUB (2) BOARD ASSY
	IC1	BAF6305	IC
	R1	NRSA63J-102N	RESISTOR
	R2	NRSA63J-105N	RESISTOR
	R3	NRSA63J-223N	RESISTOR
	R4	NRSA63J-102N	RESISTOR
	R5	NRSA63J-103N	RESISTOR
	C1	QEF80GM-226	TANTAL CAPACITOR
	C3	NCB31HK-221A	CAPACITOR
	C4	NCB31EK-103A	CAPACITOR
	C5	QEF81AM-105	TANTAL CAPACITOR

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23. VIDEO SUB (2) BOARD ASSEMBLY <24>

*⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	PWBA	YB20166A2	VIDEO SUB (2) BOARD ASSY
	D30	DAN202K	DIODE
	D31	DAP202K	C.DIODE ARRAY
	R218	QRSA08J-155YN	RESISTOR
	R219	QRSA08J-682YN	RESISTOR
	R224	QRSA08J-222YN	RESISTOR
	C152	QEF81AM-105	TANTAL CAPACITOR

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24. VIDEO SUB (3) BOARD ASSEMBLY <25>

*⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	PWBA	YB20166A3	VIDEO SUB (3) BOARD ASSY
	R822	QRSA08J-102YN	RESISTOR
	C799	QCSA1HJ-181	CAPACITOR
	L727	PU58201-221J	COIL

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25. IMAGER BOARD 2 ASSEMBLY <51>

*⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	PWBA	YB20124A-01-C	IMAGER BOARD 2 ASSY
	IC1	UPD6147G	IC
	Q1	2SC3936(BC)	TRANSISTOR
	Q2	2SB1218(QR)	TRANSISTOR
	Q3	2SB1218(QR)	TRANSISTOR
	Q4	2SC3936(BC)	TRANSISTOR
	Q5	2SD1819(RS)	TRANSISTOR
	R1	NRSA63J-153N	RESISTOR
	R2	NRSA63J-472N	RESISTOR
	R3	NRSA63J-222N	RESISTOR
	R4	NRSA63J-102N	RESISTOR
	R5	NRSA63J-393N	RESISTOR
	R6	NRSA63J-683N	RESISTOR
	R7	NRSA63J-0R0A	RESISTOR
	R8	NRSA63J-222N	RESISTOR
	R9	NRSA63J-333N	RESISTOR
	R10	NRSA63J-124N	RESISTOR
	C1	NCB31EK-103A	CAPACITOR
	C2	NCB31EK-103A	CAPACITOR
	C3	QED40JM-127	E CAPACITOR
	C4	NCB31EK-103A	CAPACITOR
	C5	NCB31EK-103A	CAPACITOR
	C6	NCB31EK-103A	CAPACITOR
	C7	NCB31EK-103A	CAPACITOR
	C8	NCB31EK-103A	CAPACITOR
	C9	NCB31EK-103A	CAPACITOR
	C10	NCB31EK-103A	CAPACITOR
	L1	PU59022-1	COIL
	CN-RD1	YU40252-7	BOARD TO BOARD
	CN-RD2	YU40252-9	BOARD TO BOARD

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26. IMAGER BOARD 1 ASSEMBLY <52>

*⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	PWBA	YB20104B-02-C	IMAGER BOARD1 ASSY
	IC2	UPD9314AGB	IC
	IC3	UPD9313AGB	IC
	OR	UPD9313GB	QFP IC
	IC4	MC8089	IC
	IC5	TC7S04F	IC
	Q5	2SD1819(RS)	TRANSISTOR
	Q6	2SA1610	TRANSISTOR
	Q7	2SC4176	TRANSISTOR
	Q8	2SA1610	TRANSISTOR
	Q9	2SC4176	TRANSISTOR
	Q10	2SC3936(BC)	TRANSISTOR
	Q11	3SK157	MOS FET
	Q12	2SK198P,Q	FE TRANSISTOR
	Q13	2SC3936(BC)	TRANSISTOR
	Q14	2SC3936(BC)	TRANSISTOR
	Q15	3SK157	MOS FET
	Q16	2SK198P,Q	FE TRANSISTOR
	Q17	2SC3936(BC)	TRANSISTOR
	D1	MA143	DIODE
	D2	MA141WK	DIODE
	D3	MA141WA	DIODE
	R10	NVP1302-104N	V RESISTOR,BLOOMING
	R11	NRSA63J-224N	RESISTOR
	R14	NRSA63J-332N	RESISTOR
	R15	NRSA63J-220N	RESISTOR
	R16	NRSA63J-104N	RESISTOR
	R17	NRSA63J-433N	RESISTOR
	R18	NRSA63J-223N	RESISTOR
	R19	NRSA63J-0R0A	RESISTOR

*⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	R20	NRSA63J-472N	RESISTOR
	R21	NRSA63J-822N	RESISTOR
	R23	NRSA63J-220N	RESISTOR
	R25	NRSA63J-220N	RESISTOR
	R26	NRSA63J-220N	RESISTOR
	R28	NRSA63J-220N	RESISTOR
	R29	NRSA63J-101N	RESISTOR
	R30	NRSA63J-470N	RESISTOR
	R31	NRSA63J-470N	RESISTOR
	R32	NRSA63J-105N	RESISTOR
	R33	NRSA63J-221N	RESISTOR
	R34	NRSA63J-0R0A	RESISTOR
	R37	NRSA63J-0R0A	RESISTOR
	R39	NRSA63J-0R0N	RESISTOR
	R41	NRSA63J-0R0A	RESISTOR
	R43	NRSA63J-391N	RESISTOR
	R44	NRSA63J-151N	RESISTOR
	R48	NRSA63J-221N	RESISTOR
	R50	NRSA63J-101N	RESISTOR
	R52	NRSA63J-0R0A	RESISTOR
	R54	NRSA63J-0R0A	RESISTOR
	R56	NRSA63J-0R0A	RESISTOR
	R58	NRSA63J-0R0A	RESISTOR
	R62	NRSA63J-0R0A	RESISTOR
	R64	NRSA63J-0R0A	RESISTOR
	R65	NRSA63J-0R0A	RESISTOR
	R67	NRSA63J-0R0A	RESISTOR
	R68	NRSA63J-0R0A	RESISTOR
	R69	NRSA63J-271N	RESISTOR
	R70	NRSA63J-271N	RESISTOR
	R72	NRSA63J-271N	RESISTOR
	R73	NRSA63J-271N	RESISTOR
	R74	NRSA63J-271N	RESISTOR
	R75	NRSA63J-271N	RESISTOR
	R76	NRSA63J-271N	RESISTOR
	R77	NRSA63J-271N	RESISTOR
	R78	NRSA63J-271N	RESISTOR
	R79	NRSA63J-271N	RESISTOR
	R80	NRSA63J-271N	RESISTOR
	R81	NRSA63J-271N	RESISTOR
	R82	NRSA63J-271N	RESISTOR
	R83	NRSA63J-271N	RESISTOR
	R84	NRSA63J-152N	RESISTOR
	R85	NRSA63J-681N	RESISTOR
	R86	NRSA63J-820N	RESISTOR
	R87	NRSA63J-682N	RESISTOR
	R88	NRSA63J-102N	RESISTOR
	R89	NRSA63J-681N	RESISTOR
	R90	NVP1302-101N	V RESISTOR, S/H COLOR(2)
	R91	NRSA63J-470N	RESISTOR
	R92	NRSA63J-682N	RESISTOR
	R93	NRSA63J-102N	RESISTOR
	R94	NRSA63J-101N	RESISTOR
	R95	NRSA63J-101N	RESISTOR
	R97	NRSA63J-473N	RESISTOR
	R101	NRSA63J-100N	RESISTOR
	R102	NRSA63J-100N	RESISTOR
	R105	NRSA63J-470N	RESISTOR
	C10	NCB31EK-103A	CAPACITOR
	C11	NCB31EK-103A	CAPACITOR
	C12	QED41CM-566	E CAPACITOR
	C13	NCB31EK-103A	CAPACITOR
	C16	NCB31EK-103A	CAPACITOR
	C17	QER41EM-475	E CAPACITOR
	C18	YU40265-4	E CAPACITOR
	C19	NCB31EK-103A	CAPACITOR
	C20	QER40JM-226	E CAPACITOR
	C21	QEF81CM-105	TANTAL CAPACITOR
	C22	QED41CM-566	E CAPACITOR
	C23	NCB31EK-103A	CAPACITOR
	C24	NCT06CH-4R0A	CAPACITOR
	C25	NCT07CH-470A	CAPACITOR
	C26	NCT07CH-470A	CAPACITOR
	C27	NCT07CH-470A	CAPACITOR
	C28	NCT07CH-470A	CAPACITOR
	C30	PU59867-100X	CHIP TRIM. CAP,FREQ.ADJ
	C32	NCT07CH-120A	CAPACITOR
	C33	NCT07CH-680A	CAPACITOR
	C34	NCT07CH-470A	CAPACITOR
	C35	NCT07CH-270A	CAP
	C36	NCT07CH-470A	CAPACITOR
	C37	QED40JM-127	E CAPACITOR
	C38	NCB31EK-103A	CAPACITOR
	C39	QER41CM-476	E CAPACITOR
	C40	NCB31EK-103A	CAPACITOR
	C41	NCB31EK-103A	CAPACITOR
	C42	NCT07CH-101A	CAPACITOR
	C43	NCT07CH-101A	CAPACITOR
	C44	NCB31EK-103A	CAPACITOR
	C45	PU58948-104	CAPACITOR
	C46	NCT07CH-270A	CAPACITOR
	C47	NCR21CK-473A	CAPACITOR
		OR NCR21CM-473A	CAPACITOR
		OR PU59913-473	CAPACITOR
	C48	NCR21CK-473A	CAPACITOR
		OR NCR21CM-473A	CAPACITOR
		OR PU59913-473	CAPACITOR
	C49	PU58948-104	CAPACITOR
	C51	PU58948-104	CAPACITOR
	C100	QCT05CH-390	CAPACITOR
	L10	PU59022-1	COIL
	L11	PU59022-1	COIL
	L12	PU59022-1	COIL
	L13	PU59022-1	COIL
⚠	X1	YU40389	CRYSTAL RESONATOR
	SKT1	YU40698	CCD SOCKET
	SLD1	YU40908	IM INSULATER
	TP1	PU58465	TEST PIN
	CN-IM1	PU58654-5	CAP HOUSING
	CN-IM3	PU58655-6	CAP HOUSING
	CN-IM4	YU40095-16	CAP HOUSING
	CN-IM5	YU40095-3	CAP HOUSING
	CN-IM7	YU40251-7	CAP HOUSING,(BOARD TO BOARD)
	CN-IM8	YU40251-9	CAP HOUSING,(BOARD TO BOARD)

* * *

27. INDICATOR BOARD ASSEMBLY <53>

*⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	PWBA	YB20121B1-01	IND. BOARD ASSY
	IC1	VC2086	IC
	IC2	VC2041	IC
	IC3	VC2042	IC
	IC4	M5223FP	IC
	IC5	UPC324G2	IC
	IC6	UPC324G2	IC
	IC7	M5236ML	IC
	IC8	TC4S01F	IC
	IC9	TC4S69F	IC
	Q1	2SC2778C	TRANSISTOR
	Q2	2SC2778C	TRANSISTOR
	Q3	2SC2778C	TRANSISTOR
	Q4	2SC2778C	TRANSISTOR
	Q5	2SB766(R)	TRANSISTOR
	Q6	2SC2778C	TRANSISTOR
	Q7	2SC2778C	TRANSISTOR
	Q8	2SC2778C	TRANSISTOR
	Q9	2SC2778C	TRANSISTOR
	Q10	2SA1022C	TRANSISTOR
	Q11	2SA1022C	TRANSISTOR
	Q12	2SK136(Q)	FE TRANSISTOR
	Q13	2SC2778C	TRANSISTOR
	Q14	2SA1022C	TRANSISTOR
	Q15	2SC2778C	TRANSISTOR
	Q16	2SC2778C	TRANSISTOR
	Q17	2SA1022C	TRANSISTOR
	Q18	2SA1022C	TRANSISTOR
	Q19	2SA1022C	TRANSISTOR
	Q20	2SC2778C	TRANSISTOR
	Q21	2SC2778C	TRANSISTOR
	Q22	2SC2778C	TRANSISTOR
	Q23	2SC2778C	TRANSISTOR
	Q24	2SC2778C	TRANSISTOR
	Q25	DTC144WK	TRANSISTOR
	Q26	DTC144WK	TRANSISTOR
	D3	MA153	DIODE
	D4	MA153	DIODE
	D5	MA153	DIODE
	D6	MA151WK	DIODE
	D7	MA151WK	DIODE
	D8	MA151WA	DIODE
	D9	MA151WK	DIODE
	D10	MA151WK	DIODE
	D11	MA151WK	DIODE
	D12	MA151WK	DIODE
	D13	MA151WK	DIODE
	D14	MA151WK	DIODE
	D15	MA151WK	DIODE
	D16	MA151WK	DIODE
	D17	MA151WA	DIODE
	D18	1SS99	DIODE
	D19	1SS99	DIODE
	D21	MA185	DIODE
	D22	MA184	DIODE
		OR MA185	DIODE
		OR MA186	DIODE
⚠	D23	MA151WK	DIODE
	D25	RD8.2ESB	ZENER DIODE
	R2	QRSA08J-0R0Y	RESISTOR
	R3	QRSA08J-222YN	RESISTOR
	R4	QVZ3606-222	V RESISTOR, IND
	R7	QRSA08J-0R0Y	RESISTOR
	R8	QRSA08J-103YN	RESISTOR
	R9	QRSA08J-103YN	RESISTOR
	R10	QRSA08J-104YN	RESISTOR
	R11	QRSA08J-333YN	RESISTOR
	R12	QRSA08J-104YN	RESISTOR
	R13	QRSA08J-333YN	RESISTOR
	R14	QRSA08J-333YN	RESISTOR
	R15	QRSA08J-333YN	RESISTOR
	R16	QRSA08J-333YN	RESISTOR
	R17	QRSA08J-333YN	RESISTOR
	R18	QRSA08J-0R0Y	RESISTOR
	R20	QRSA08J-0R0Y	RESISTOR
	R22	QRSA08J-0R0Y	RESISTOR
	R24	QRSA08J-333YN	RESISTOR
	R25	QRSA08J-333YN	RESISTOR
	R26	QRSA08J-333YN	RESISTOR
	R27	QRSA08J-183YN	RESISTOR
	R28	QRSA08J-103YN	RESISTOR
	R29	QRSA08J-103YN	RESISTOR
	R30	QRSA08J-333YN	RESISTOR
	R31	QRSA08J-333YN	RESISTOR
	R34	QRSA08J-103YN	RESISTOR
	R35	QRSA08J-104YN	RESISTOR
	R36	QRSA08J-103YN	RESISTOR
	R37	QRSA08J-103YN	RESISTOR
	R38	QRSA08J-104YN	RESISTOR
	R39	QRSA08J-823YN	RESISTOR
	R40	QRSA08J-473YN	RESISTOR
	R41	QRSA08J-473YN	RESISTOR
	R42	QRSA08J-103YN	RESISTOR
	R43	QRSA08J-223YN	RESISTOR
	R44	QRSA08J-103YN	RESISTOR
	R46	QRSA08J-0R0Y	RESISTOR
	R47	QRSA08J-103YN	RESISTOR
	R48	QRSA08J-103YN	RESISTOR
	R49	QRSA08J-104YN	RESISTOR
	R50	QRSA08J-0R0Y	RESISTOR
	R51	QRSA08J-102YN	RESISTOR
	R52	QRSA08J-272YN	RESISTOR
	R53	QRSA08J-104YN	RESISTOR
	R54	QRSA08J-103YN	RESISTOR
	R55	QRSA08J-103YN	RESISTOR
	R56	QRSA08J-562YN	RESISTOR
	R57	QRSA08J-563YN	RESISTOR
	R58	QRSA08J-303YN	RESISTOR
	R59	QRSA08J-153YN	RESISTOR
	R61	QRSA08J-223YN	RESISTOR
	R62	QRSA08J-103YN	RESISTOR
	R63	QRSA08J-0R0Y	RESISTOR
	R64	QRSA08J-221YN	RESISTOR
⚠	R65	PU52108-101	POSITIVE THERMISTOR
	R66	QRSA08J-153YN	RESISTOR
	R67	QRSA08J-153YN	RESISTOR
	R68	NRVA62D-123N	RESISTOR
	R69	NRVA62D-822N	RESISTOR
	R70	NRVA62D-332N	RESISTOR
	R71	QRSA08J-103YN	RESISTOR

*△	REF NO.	PART NO.	PART NAME, DESCRIPTION
	R72	QRSA08J-103YN	RESISTOR
	R74	QRSA08J-104YN	RESISTOR
	R75	QRSA08J-104YN	RESISTOR
	R77	QRSA08J-473YN	RESISTOR
	R78	QRSA08J-272YN	RESISTOR
	R79	QRSA08J-274YN	RESISTOR
	R80	QRSA08J-103YN	RESISTOR
	R81	QRSA08J-273YN	RESISTOR
	R82	QRSA08J-103YN	RESISTOR
	R83	QRSA08J-103YN	RESISTOR
	R84	QRSA08J-103YN	RESISTOR
	R85	QRSA08J-103YN	RESISTOR
	R86	QRSA08J-123YN	RESISTOR
	R87	QRSA08J-123YN	RESISTOR
	R88	QRSA08J-123YN	RESISTOR
	R89	QRSA08J-273YN	RESISTOR
	R90	QRSA08J-562YN	RESISTOR
	R92	QVZ3531-102	V RESISTOR,IRIS ADJ
	R93	QRSA08J-102YN	RESISTOR
	R94	QRSA08J-102YN	RESISTOR
	R97	QRSA08J-0R0Y	RESISTOR
	R98	QRSA08J-0R0Y	RESISTOR
	R105	NRSA63J-333N	RESISTOR
	R106	QRSA08J-472YN	RESISTOR
	R107	QRSA08J-152YN	RESISTOR
	R108	QRSA08J-152YN	RESISTOR
	R109	QRSA08J-222YN	RESISTOR
	R110	QRSA08J-153YN	RESISTOR
	R111	QRSA08J-472YN	RESISTOR
	R112	NRSA63J-223N	RESISTOR
	R113	NRSA63J-333N	RESISTOR
	R114	QRSA08J-333YN	RESISTOR
	R115	NRSA63J-153N	RESISTOR
	R116	QRSA08J-682YN	RESISTOR
	R117	QRSA08J-152YN	RESISTOR
	R118	QRSA08J-223YN	RESISTOR
	R119	QRSA08J-223YN	RESISTOR
	R120	QRSA08J-0R0Y	RESISTOR
	R121	QRSA08J-153YN	RESISTOR
	R122	QRSA08J-682YN	RESISTOR
	R123	QRSA08J-104YN	RESISTOR
	R125	QRSA08J-0R0Y	RESISTOR
	R126	QRSA08J-103YN	RESISTOR
	R127	QRSA08J-333YN	RESISTOR
	R128	QRSA08J-333YN	RESISTOR
	R129	QRSA08J-103YN	RESISTOR
	R130	QRSA08J-103YN	RESISTOR
	R131	QRSA08J-153YN	RESISTOR
	R132	QRSA08J-562YN	RESISTOR
	R133	QRSA08J-562YN	RESISTOR
	R134	QRSA08J-393YN	RESISTOR
	R135	QRSA08J-103YN	RESISTOR
	R136	QRSA08J-103YN	RESISTOR
	R137	QRSA08J-153YN	RESISTOR
	R138	QRSA08J-273YN	RESISTOR
	R139	QRSA08J-333YN	RESISTOR
	R140	QRSA08J-333YN	RESISTOR
	R141	QRSA08J-223YN	RESISTOR
	R142	QRSA08J-333YN	RESISTOR
	R143	QRSA08J-682YN	RESISTOR
	R144	QRSA08J-333YN	RESISTOR
	R145	QRSA08J-0R0Y	RESISTOR
	R146	QRSA08J-393YN	RESISTOR
	R147	QRSA08J-103YN	RESISTOR
	R148	QRSA08J-103YN	RESISTOR
	R149	QRSA08J-273YN	RESISTOR
	R150	QRSA08J-562YN	RESISTOR
	R151	QRSA08J-103YN	RESISTOR
	R152	QRSA08J-123YN	RESISTOR
	R153	QRSA08J-102YN	RESISTOR
	R154	QRSA08J-152YN	RESISTOR
	R155	QVZ3606-472	V RESISTOR, IRIS V. SENS
	R156	QRSA08J-103YN	RESISTOR
	R157	QRSA08J-683YN	RESISTOR
	R158	QRSA08J-101YN	RESISTOR
	R159	ERT-D2FEL200S	THERMISTOR
	R160	NRSA63J-153N	RESISTOR
	R161	NRSA63J-333N	RESISTOR
	R164	QRSA08J-103YN	RESISTOR
	R165	QRSA08J-104YN	RESISTOR
	R166	QRSA08J-122YN	RESISTOR
	R167	QRSA08J-123YN	RESISTOR
	R168	QRSA08J-103YN	RESISTOR
	R169	QRSA08J-102YN	RESISTOR
	R170	QRSA08J-103YN	RESISTOR
	R171	QRSA08J-0R0Y	RESISTOR
	R172	QRSA08J-103YN	RESISTOR
	R173	QRSA08J-103YN	RESISTOR
	R175	NRSA63J-333N	RESISTOR
	R176	QRD161J-470	RESISTOR
	R177	QRD161J-103	RESISTOR
	R178	QRD161J-103	RESISTOR
	B1	QRSA08J-0R0Y	RESISTOR
	B2	QRSA08J-0R0Y	RESISTOR
	B3	QRSA08J-0R0Y	RESISTOR
	B4	NRSA63J-0R0A	RESISTOR
	B9	NRSA63J-0R0A	RESISTOR
	C1	QER41AM-336	E CAPACITOR
	C2	QCYA1HK-103	CAPACITOR
	C3	QEF81AM-226	TANTAL CAPACITOR
	C4	QCTA1CH-180	CAPACITOR
	C5	QCTA1CH-220	CAPACITOR
	C6	QCTA1CH-220	CAPACITOR
	C7	QCFA1EZ-104	CAPACITOR
	C8	QCFA1EZ-104	CAPACITOR
	C9	QCTA1CH-270	CAPACITOR
	C10	QCFA1EZ-104	CAPACITOR
	C11	QCYA1HK-103	CAPACITOR
	C12	QED41AM-826	E CAPACITOR
	OR	QEDF1AM-826	E CAPACITOR
	C13	QCYA1HK-103	CAPACITOR
	C14	PU58948-104	CAPACITOR
	C15	QED41AM-826	E CAPACITOR
	OR	QEDF1AM-826	E CAPACITOR
	C16	QED41AM-826	E CAPACITOR
	OR	QEDF1AM-826	E CAPACITOR
	C17	QCYA1HK-103	CAPACITOR
	C18	QED41AM-826	E CAPACITOR
	OR	QEDF1AM-826	E CAPACITOR
	C19	QCYA1HK-103	CAPACITOR
	C20	QED41CM-566	E CAPACITOR
	C21	QCYA1HK-103	CAPACITOR
	C22	QED41AM-826	E CAPACITOR
	OR	QEDF1AM-826	E CAPACITOR
	C23	QCYA1HK-103	CAPACITOR
	C24	QEF81AM-106	TANTAL CAPACITOR
	C25	QEF81AM-685	TANTAL CAPACITOR
	OR	QEF81CM-685	TANTAL CAPACITOR
	C26	QEF81VM-105	TANTAL CAPACITOR
	C27	QCYA1HK-223	CAPACITOR
	C28	QER41AM-336	E CAPACITOR
	C29	QCYA1HK-103	CAPACITOR
	C30	QEF81AM-226	TANTAL CAPACITOR
	C31	QEF81AM-226	TANTAL CAPACITOR
	C32	PU59913-473K	CAPACITOR
	OR	PU59913-473	CAPACITOR
	C34	QCFA1EZ-683	CAPACITOR
	C35	QCYA1HK-152	CAPACITOR
	C36	QCYA1HK-562	CAPACITOR
	C38	QEF81AM-475	TANTAL CAPACITOR
	C39	QCTA1CH-471	CAPACITOR
	C40	QCTA1CH-820	CAPACITOR
	C41	QCFA1EZ-104	CAPACITOR
	C42	QEE40JM-686	TANTAL CAPACITOR
	C46	QCFA1EZ-104	CAPACITOR
	C48	QCFA1EZ-104	CAPACITOR
	C50	QEE40JM-686	TANTAL CAPACITOR
	C51	QCYA1HK-821	CAPACITOR
	C52	QCYA1HK-103	CAPACITOR
	C53	QCYA1HK-103	CAPACITOR
	C54	QCYA1HK-103	CAPACITOR
	C55	QCYA1HK-103	CAPACITOR
	C56	QCYA1HK-103	CAPACITOR
	C57	QCFA1EZ-104	CAPACITOR
	C58	QCYA1HK-821	CAPACITOR
	C59	QCYA1HK-821	CAPACITOR
	C70	QCFA1EZ-104	CAPACITOR
	C71	QCFA1EZ-104	CAPACITOR
	C72	QCFA1EZ-104	CAPACITOR
	C73	QCFA1EZ-104	CAPACITOR
	L1	PU59022-1	COIL
	L2	PU59022-1	COIL
△	X1	YU40141	CRYSTAL RESONATOR
	DD1	YU40132-2	DC-DC CONVERTER
	SLD1	YU40343	SHIELD CASE
	CN-M1	PU58251-10	CAP HOUSING
	CN-M2	PU58251-14	CAP HOUSING
	CN-M5	PU58654-4	CAP HOUSING
	CN-M8	PU58250-10	CAP HOUSING
	CN-M9	PU58250-12	CAP HOUSING
	CN-M13	YU40593-15	CAP HOUSING
	CN-M15	PU58654-3	CAP HOUSING
	CN-M16	PU58654-2	CAP HOUSING

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28. F.A.W. BOARD ASSEMBLY <54>

*△	REF NO.	PART NO.	PART NAME, DESCRIPTION
	PWBA	YB200108-02-C	FAW BOARD ASSY
	IC1	M54641FP	IC
	IC2	M5223FP	IC
	IC3	MN4081BS	IC
	IC4	MN4071BS	IC
	IC5	BU4053BF	IC
	IC6	AN608P	IC
	IC7	M5223FP	IC
	Q1	2SB709Q	TRANSISTOR
	Q3	DTC124EK	TRANSISTOR
	Q4	DTC124EK	TRANSISTOR
	Q5	FMW1	TRANSISTOR
	Q6	2SA1037K(Q)	TRANSISTOR
	Q7	FMS1	TRANSISTOR
	Q8	2SC2404C	TRANSISTOR
	Q9	FMS1	TRANSISTOR
	Q10	2SC2413K(Q)	TRANSISTOR
	Q11	FMW1	TRANSISTOR
	Q12	2SC2413K(Q)	TRANSISTOR
	Q13	2SC2413K(Q)	TRANSISTOR
	Q14	2SB709Q	TRANSISTOR
	Q15	2SJ84Q	FE TRANSISTOR
	Q16	2SJ84R	FE TRANSISTOR
	Q17	2SB709Q	TRANSISTOR
	Q18	2SD602(QR)	TRANSISTOR
	D1	MA151WA	DIODE
	D2	MA151WA	DIODE
	D3	MA151WK	DIODE
	R3	QRSA08J-123YN	RESISTOR
	R4	QRSA08J-562YN	RESISTOR
	R5	QRSA08J-472YN	RESISTOR
	R6	QRSA08J-122YN	RESISTOR
	R10	QRSA08J-103YN	RESISTOR
	R11	QRSA08J-472YN	RESISTOR
	R12	QRSA08J-681YN	RESISTOR
	R13	QRSA08J-392YN	RESISTOR
	R14	QRSA08J-181YN	RESISTOR
	R15	QRSA08J-224YN	RESISTOR
	R16	QRSA08J-473YN	RESISTOR
	R17	QRSA08J-223YN	RESISTOR
	R18	QRSA08J-223YN	RESISTOR
	R19	QRSA08J-563YN	RESISTOR
	R20	QRSA08J-273YN	RESISTOR
	R21	PU57457-472	V RESISTOR,INDOOR STD
	R22	QRSA08J-682YN	RESISTOR
	R23	QRSA08J-273YN	RESISTOR
	R24	PU57457-472	V RESISTOR,FL STD
	R25	QRSA08J-682YN	RESISTOR
	R26	QRSA08J-474YN	RESISTOR
	R27	QRSA08J-562YN	RESISTOR
	R28	QRSA08J-222YN	RESISTOR
	R29	QRSA08J-222YN	RESISTOR
	R30	QRSA08J-562YN	RESISTOR
	R31	QRSA08J-222YN	RESISTOR
	R32	QRSA08J-222YN	RESISTOR
	R33	QRSA08J-562YN	RESISTOR
	R34	QRSA08J-222YN	RESISTOR
	R35	QRSA08J-122YN	RESISTOR
	R36	QRSA08J-122YN	RESISTOR
	R37	QRSA08J-223YN	RESISTOR
	R38	QRSA08J-223YN	RESISTOR
	R39	QRSA08J-472YN	RESISTOR
	R40	QRSA08J-103YN	RESISTOR
	R41	QRSA08J-102YN	RESISTOR
	R42	QRSA08J-102YN	RESISTOR
	R43	QRSA08J-103YN	RESISTOR
	R44	QRSA08J-472YN	RESISTOR
	R45	QRSA08J-472YN	RESISTOR
	R46	QRSA08J-103YN	RESISTOR
	R47	QRSA08J-472YN	RESISTOR
	R48	QRSA08J-682YN	RESISTOR
	R49	QRSA08J-102YN	RESISTOR
	R50	QRSA08J-102YN	RESISTOR
	R52	QRSA08J-122YN	RESISTOR
	R53	QRSA08J-223YN	RESISTOR
	R55	QRSA08J-563YN	RESISTOR
	R56	QRSA08J-104YN	RESISTOR
	R58	QRSA08J-273YN	RESISTOR
	R59	QRSA08J-682YN	RESISTOR

*⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	R60	QRSA08J-152YN	RESISTOR
	R61	QRSA08J-183YN	RESISTOR
	R62	QRSA08J-681YN	RESISTOR
	R65	QRD161J-470	RESISTOR
	R74	QRSA08J-274YN	RESISTOR
	R75	QRSA08J-0R0Y	RESISTOR
	C1	QEF80GM-475	TANTAL CAPACITOR
	C2	QEF80JM-685	TANTAL CAPACITOR
	C3	QCYA1HK-103	CAPACITOR
	C4	QEF80JM-106	TANTAL CAPACITOR
	C5	QER40JM-336	TANTAL CAPACITOR
	C6	QEF80GM-106	TANTAL CAPACITOR
	C7	QEF80GM-475	TANTAL CAPACITOR
	C8	QEF80GM-475	TANTAL CAPACITOR
	C9	QEF81VM-104	TANTAL CAPACITOR
	C10	QEF80GM-106	TANTAL CAPACITOR
	C11	QEF81AM-106	TANTAL CAPACITOR
	C23	QEF81AM-336	TANTAL CAPACITOR
	C24	QCFA1EZ-104	CAPACITOR
	C25	QEF81CM-226	TANTAL CAPACITOR
	C26	QEF81CM-226	TANTAL CAPACITOR
	C27	QCFA1EZ-104	CAPACITOR
	C28	QER41CM-336	E CAPACITOR
	L1	PU59022-3	COIL
	L2	PU59022-1	COIL
	CN-FA10	PU58655-4	CAP HOUSING
	CN-FA11	PU58655-3	CAP HOUSING
	CN-FA12	PU58252-8	CAP HOUSING
	CN-FA13	PU58252-8	CAP HOUSING
	CN-FA14	PU58252-10	CAP HOUSING
	CN-FA15	PU58655-4	CAP HOUSING

* * *

29. VIDEO PROCESS BOARD ASSEMBLY <55>

*⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	PWBA	YB20009B-03-C	VIDEO PROCESS BOARD ASSY
	IC1	UPC2373GH	IC
	IC2	UPC2371GH	IC
	IC3	THE172	IC
	IC4	THE171F	IC
	IC5	M5223FP	IC
	Q1	2SC2413K(Q)	TRANSISTOR
	Q2	2SA1037K(Q)	TRANSISTOR
	Q3	2SA1037K(Q)	TRANSISTOR
	Q4	2SA1037K(Q)	TRANSISTOR
	Q5	2SC2413K(Q)	TRANSISTOR
	Q6	2SC2413K(Q)	TRANSISTOR
	Q7	2SC2413K(Q)	TRANSISTOR
	Q8	2SA1037K(Q)	TRANSISTOR
	Q9	2SC2413K(Q)	TRANSISTOR
	Q10	2SC2413K(Q)	TRANSISTOR
	Q11	2SA1037K(Q)	TRANSISTOR
	Q12	2SA1037K(Q)	TRANSISTOR
	D1	1SS133	DIODE
	D2	PD152V	PHOTO DIODE
	R1	QRSA08J-273YN	RESISTOR
	R2	QRSA08J-473YN	RESISTOR
	R3	QRSA08J-333YN	RESISTOR
	R4	QRSA08J-183YN	RESISTOR
	R5	NVP1301-103N	V RESISTOR,AGC
	R6	QRSA08J-562YN	RESISTOR
	R7	QRSA08J-183YN	RESISTOR
	R8	NVP1301-103N	V RESISTOR, LOW LIGHT IND LEVEL
	R9	QRSA08J-183YN	RESISTOR
	R10	QRSA08J-153YN	RESISTOR
	R11	QRSA08J-182YN	RESISTOR
	R12	QRSA08J-102YN	RESISTOR
	R13	QRSA08J-563YN	RESISTOR
	R14	NVP1301-223N	V RESISTOR,B SEPA
	R15	QRSA08J-333YN	RESISTOR
	R17	NVP1301-223N	V RESISTOR,R SEPA
	R19	NVP1301-222N	V RESISTOR,R PROCESS
	R20	QRSA08J-102YN	RESISTOR
	R21	NVP1301-222N	V RESISTOR,B PROCESS
	R22	QRSA08J-102YN	RESISTOR
	R23	QRSA08J-152YN	RESISTOR
	R24	QRSA08J-152YN	RESISTOR
	R25	QRSA08J-102YN	RESISTOR
	R26	QRSA08J-102YN	RESISTOR
	R27	QRSA08J-392YN	RESISTOR
	R28	QRSA08J-182YN	RESISTOR
	R29	QRSA08J-182YN	RESISTOR
	R30	NRSA63J-182N	RESISTOR
	R31	QRSA08J-223YN	RESISTOR
	R32	NVP1301-103N	V RESISTOR Y SET UP
	R33	NVP1301-103N	V RESISTOR YL SET UP LEVEL
	R34	QRSA08J-223YN	RESISTOR
	R35	QRSA08J-223YN	RESISTOR
	R36	QRSA08J-223YN	RESISTOR
	R37	QRSA08J-102YN	RESISTOR
	R38	QRSA08J-182YN	RESISTOR
	R39	QRSA08J-102YN	RESISTOR
	R40	QRSA08J-182YN	RESISTOR
	R41	QRSA08J-223YN	RESISTOR
	R42	NVP1301-103N	V RESISTOR,R SET UP
	R43	NVP1301-103N	V RESISTOR,B SET UP
	R44	QRSA08J-223YN	RESISTOR
	R45	QRSA08J-123YN	RESISTOR
	R46	QRSA08J-472YN	RESISTOR
	R47	QRSA08J-223YN	RESISTOR
	R48	QRSA08J-153YN	RESISTOR
	R49	QRSA08J-392YN	RESISTOR
	R50	QRSA08J-273YN	RESISTOR
	R51	QRSA08J-0R0Y	RESISTOR
	R52	QRSA08J-103YN	RESISTOR
	R53	QRSA08J-182YN	RESISTOR
	R54	QRSA08J-102YN	RESISTOR
	R55	QRSA08J-102YN	RESISTOR
	R56	QRSA08J-182YN	RESISTOR
	R57	NVP1301-103N	V RESISTOR,NOISE SUP GAIN
	R58	QRSA08J-103YN	RESISTOR
	R59	QRSA08J-182YN	RESISTOR
	R60	QRSA08J-223YN	RESISTOR
	R61	QRSA08J-223YN	RESISTOR
	R62	QRSA08J-182YN	RESISTOR
	R63	QRSA08J-103YN	RESISTOR
	R64	NVP1301-103N	V RESISTOR,B-Y GAIN
	R65	QRSA08J-103YN	RESISTOR
	R66	QRSA08J-123YN	RESISTOR
	R67	QRSA08J-103YN	RESISTOR
	R68	QRSA08J-333YN	RESISTOR
	R69	QRSA08J-333YN	RESISTOR
	R70	QRSA08J-392YN	RESISTOR
	R71	QRSA08J-123YN	RESISTOR
	R72	QRSA08J-273YN	RESISTOR
	R73	NRSA63J-153N	RESISTOR
	R74	NRSA63J-123N	RESISTOR
	R75	NRSA63J-333N	RESISTOR
	R76	NRSA63J-182N	RESISTOR
	R77	NRSA63J-223N	RESISTOR
	R78	NRSA63J-153N	RESISTOR
	R79	NRSA63J-104N	RESISTOR
	R80	NRSA63J-123N	RESISTOR
	R81	NVP1301-103N	V RESISTOR,YH GAIN
	R82	QRSA08J-103YN	RESISTOR
	R86	QRSA08J-681YN	RESISTOR
	R87	QRSA08J-102YN	RESISTOR
	R88	QRSA08J-303YN	RESISTOR
	R89	QRSA08J-0R0Y	RESISTOR
	R90	QRSA08J-243YN	RESISTOR
	R91	QRSA08J-103YN	RESISTOR
	R92	QRSA08J-682YN	RESISTOR
	R93	NVP1301-103N	V RESISTOR,COLOR DIF OFFSET
	R94	QRSA08J-103YN	RESISTOR
	R95	ERT-D2FIK154S	THERMISTOR
	R96	QRSA08J-822YN	RESISTOR
	R97	NVP1301-103N	V RESISTOR,SENSOR SET UP
	R98	QRSA08J-392YN	RESISTOR
	R99	QRSA08J-562YN	RESISTOR
	R100	QRSA08J-562YN	RESISTOR
	R101	QRSA08J-562YN	RESISTOR
	R102	QRSA08J-562YN	RESISTOR
	R104	QRSA08J-103YN	RESISTOR
	R105	NRSA63J-331N	RESISTOR
	R106	NRSA63J-562N	RESISTOR
	R107	NRSA63J-562N	RESISTOR
	R108	NRSA63J-223N	RESISTOR
	R109	ERT-D2FGL171S	THERMISTOR
	C1	QCYA1HK-223	CAPACITOR
	C2	ECEV1CV100R	E CAPACITOR
	C3	QCYA1HK-223	CAPACITOR
	C4	QEF81AM-105	TANTAL CAPACITOR
	C5	ECEV1CV100R	E CAPACITOR
	C6	PU59913-473K	CAPACITOR
	OR	PU59913-473	CAPACITOR
	C7	PU59913-473K	CAPACITOR
	OR	PU59913-473	CAPACITOR
	C8	QCYA1HK-223	CAPACITOR
	C9	QCYA1HK-223	CAPACITOR
	C10	QEE81VM-224	CAPACITOR
	C11	QCYA1HK-223	CAPACITOR
	C12	PU59913-473K	CAPACITOR
	OR	PU59913-473	CAPACITOR
	C13	QEE81VM-224	CAPACITOR
	C14	ECEV1EV4R7R	E CAPACITOR
	C15	PU59913-473K	CAPACITOR
	OR	PU59913-473	CAPACITOR
	C16	QEE81VM-224	CAPACITOR
	C17	QEE81VM-224	CAPACITOR
	C18	PU59913-473K	CAPACITOR
	OR	PU59913-473	CAPACITOR
	C19	ECEV1EV4R7R	E CAPACITOR
	C20	QEE81EM-105	CAPACITOR
	C21	QCYA1HK-223	CAPACITOR
	C22	QCYA1HK-223	CAPACITOR
	C23	QCYA1HK-223	CAPACITOR
	C24	QCYA1HK-103	CAPACITOR
	C25	QEF80JM-225	TANTAL CAPACITOR
	C26	PU59913-473K	CAPACITOR
	OR	PU59913-473	CAPACITOR
	C27	QCFA1EZ-104	CAPACITOR
	C28	QCTA1CH-330	CAPACITOR
	C29	QCYA1HK-472	CAPACITOR
	C30	QCYA1HK-223	CAPACITOR
	C31	ECEV0GV330R	E CAPACITOR
	C32	QCYA1HK-223	CAPACITOR
	C33	PU59913-473K	CAPACITOR
	OR	PU59913-473	CAPACITOR
	C34	PU59913-473K	CAPACITOR
	OR	PU59913-473	CAPACITOR
	C35	PU59913-473K	CAPACITOR
	OR	PU59913-473	CAPACITOR
	C36	PU59913-473K	CAPACITOR
	OR	PU59913-473	CAPACITOR
	C37	PU59913-473K	CAPACITOR
	OR	PU59913-473	CAPACITOR
	C38	QCYA1HK-103	CAPACITOR
	C39	QCYA1HK-223	CAPACITOR
	C40	ECEV1CV100R	E CAPACITOR
	C41	ECEV1CV100R	E CAPACITOR
	C42	QCYA1HK-223	CAPACITOR
	C43	QED41AM-826	E CAPACITOR
	C44	QEE81AM-106	CAPACITOR
	C45	QCFA1EZ-104	CAPACITOR
	C46	QCYA1HK-223	CAPACITOR
	C47	QCFA1EZ-104	CAPACITOR
	C48	ECEV1CV100R	E CAPACITOR
	C49	QCYA1HK-223	CAPACITOR
	C50	QED40JM-127	E CAPACITOR
	C51	QCYA1HK-223	CAPACITOR
	C52	QCTA1CH-330	CAPACITOR
	C53	QCFA1EZ-104	CAPACITOR
	C54	QEE80JM-226	TANTAL CAPACITOR
	L1	PU59022-1	COIL
	L2	PU59022-1	COIL
	L3	PU59022-1	COIL
	L4	PU59022-1	COIL
	TRAP	YU40805	TRAP1
	LPF1	YU40802	LOW PASS FILTER
	LPF2	YU40803	LOW PASS FILTER
	LPF3	YU40803	LOW PASS FILTER
	FIL1	PU59841	FILTER
	SLD1	YU40397	SHIELD PLATE (FOR IC4)
	SLD2	YU40327	CCD SHIELD PLATE
	SLD3	YQ40456	SHIELD CASE
	SLD4	PU59059	SHIELD CASE
	SLD5	YQ40453	WHITE SENSOR CASE
	SLD6	YQ40454	WHITE SENSOR COVER
	SLD7	YQ40455	WHITE FILTER
	TP1	PU58465	TEST PIN
	TP2	PU58465	TEST PIN
	TP3	PU58465	TEST PIN
	TP4	PU58465	TEST PIN
	TP5	PU58465	TEST PIN
	TP6	PU58465	TEST PIN
	TP7	YU40648	TEST PIN
	TP8	YU40648	TEST PIN
	TP9	YU40648	TEST PIN
	TP10	YU40648	TEST PIN
	CN-VP1	PU58250-14	CAP HOUSING

*⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	CN-VP2	PU58250-10	CAP HOUSING
	CN-VP3	PU58250-10	CAP HOUSING
	CN-VP4	PU58250-8	CAP HOUSING
	CN-VP5	PU58250-8	CAP HOUSING
	CN-VP6	PU58655-2	CAP HOUSING

-VIDEO COMP AMP (1) BOARD ASSEMBLY-

*⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	PWBA	YB20030A-C	V.COMP.AMP(1) BOARD ASSY
	Q1	2SC2404C	TRANSISTOR
	Q2	2SA1022C	TRANSISTOR
	Q3	2SC2778C	TRANSISTOR
	R1	QRSA08J-562YN	RESISTOR
	R2	QRSA08J-472YN	RESISTOR
	R3	QRSA08J-822YN	RESISTOR
	R4	QRSA08J-103YN	RESISTOR
	R5	QRSA08J-332YN	RESISTOR
	R6	QRSA08J-222YN	RESISTOR
	R7	QRSA08J-222YN	RESISTOR
	R8	QRSA08J-102YN	RESISTOR
	R9	QRSA08J-101YN	RESISTOR
	C1	QCTA1CH-120	CAPACITOR
	C3	QCFA1EZ-104	CAPACITOR
	SPC1	PU59915-105	SPACER

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30. ENCODER BOARD ASSEMBLY <56>

*⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	PWBA	YB20012A-04-C	ENCODER BOARD ASSY
	IC1	EHD-AW2642	IC
	IC2	AN2276S	IC
	IC3	MC8181D	IC
	IC4	TC4S81F	IC
	IC5	TC4S81F	IC
	IC6	TC4S69F	IC
	Q1	2SC3936(BC)	TRANSISTOR
	Q2	2SC3936(BC)	TRANSISTOR
	Q6	2SA1532(BC)	TRANSISTOR
	Q10	2SA1532(BC)	TRANSISTOR
	Q11	2SC3936(BC)	TRANSISTOR
	Q12	2SC3936(BC)	TRANSISTOR
	Q13	2SC3936(BC)	TRANSISTOR
	Q14	2SC3936(BC)	TRANSISTOR
	Q15	2SC3936(BC)	TRANSISTOR
	Q16	2SC3936(BC)	TRANSISTOR
	Q17	2SA1532(BC)	TRANSISTOR
	D1	MA151WK	DIODE
	R1	NVP1301-223N	V RESISTOR,YH LIN
	R2	NRSA63J-103N	RESISTOR
	R3	NRSA63J-103N	RESISTOR
	R4	NRSA63J-471N	RESISTOR
	R5	NVP1301-332N	V RESISTOR, YH (1H) GAIN
	R7	NVP1301-102N	V RESISTOR, V EDGE BAL (1H)
	R8	NRSA63J-272N	RESISTOR
	R9	NRSA63J-272N	RESISTOR
	R10	NRSA63J-681N	RESISTOR
	R11	NRSA63J-681N	RESISTOR
	R12	NVP1301-222N	V RESISTOR, BURST PHASE
	R13	NRSA63J-103N	RESISTOR

*⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	R14	NVP1301-223N	V RESISTOR,WHITE CLIP
	R15	NRSA63J-103N	RESISTOR
	R17	NVP1301-103N	V RESISTOR, SYNC LEVEL
	R19	NRSA63J-822N	RESISTOR
	R20	NRSA63J-271N	RESISTOR
	R21	NRSA63J-682N	RESISTOR
	R22	NRSA63J-272N	RESISTOR
	R23	NRSA63J-102N	RESISTOR
	R24	NRSA63J-202N	RESISTOR
	R25	NRSA63J-392N	RESISTOR
	R30	QRD161J-103	RESISTOR
	R31	NRSA63J-103N	RESISTOR
	R32	NVP1301-223N	V RESISTOR,B CARRIER BAL
	R33	NRSA63J-223N	RESISTOR
	R34	NVP1301-223N	V RESISTOR,R CARRIER BAL
	R35	NRSA63J-102N	RESISTOR
	R36	NRSA63J-562N	RESISTOR
	R37	NVP1301-103N	V RESISTOR,COLOR GAIN
	R38	NRSA63J-103N	RESISTOR
	R40	NVP1301-103N	V RESISTOR,SYNC LEVEL
	R41	NRSA63J-562N	RESISTOR
	R42	NVP1301-103N	V RESISTOR,BURST GAIN
	R43	NRSA63J-562N	RESISTOR
	R44	NRSA63J-102N	RESISTOR
	R45	NRSA63J-102N	RESISTOR
	R46	NRSA63J-102N	RESISTOR
	R47	NRSA63J-102N	RESISTOR
	R48	NRSA63J-821N	RESISTOR
	R49	NRSA63J-821N	RESISTOR
	R101	NRSA63J-102N	RESISTOR
	R103	NRSA63J-102N	RESISTOR
	R104	NRSA63J-102N	RESISTOR
	R105	NVP1301-103N	V RESISTOR, R-Y PAHASE
	R106	NRSA63J-122N	RESISTOR
	R107	NRSA63J-821N	RESISTOR
	R108	NRSA63J-122N	RESISTOR
	R109	NRSA63J-821N	RESISTOR
	R110	NRSA63J-103N	RESISTOR
	R111	NRSA63J-682N	RESISTOR
	R113	NRSA63J-102N	RESISTOR
	R114	NRSA63J-222N	RESISTOR
	R115	NRSA63J-102N	RESISTOR
	R116	NRSA63J-222N	RESISTOR
	R117	NVP1301-223N	V RESISTOR, R CAR LS
	R118	NVP1301-223N	V RESISTOR, B CAR LS
	R119	NRSA63J-102N	RESISTOR
	R120	NRSA63J-102N	RESISTOR
	R121	NRSA63J-103N	RESISTOR
	R122	NRSA63J-103N	RESISTOR
	R123	NRSA63J-223N	RESISTOR
	R124	NRSA63J-152N	RESISTOR
	R125	NRSA63J-222N	RESISTOR
	R126	NRSA63J-682N	RESISTOR
	R127	NRSA63J-102N	RESISTOR
	R128	NRSA63J-331N	RESISTOR
	R130	NRSA63J-682N	RESISTOR
	R135	NRSA63J-222N	RESISTOR
	R150	NRSA63J-102N	RESISTOR
	R151	NRSA63J-0R0A	RESISTOR
	R153	QRD161J-154	RESISTOR
	R154	QRD161J-103	RESISTOR
	B13	NRSA63J-0R0A	RESISTOR
	B14	NRSA63J-0R0A	RESISTOR

*⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	C1	NEH11CM-106NZ	E CAPACITOR
	C3	NEH10JM-226NZ	E CAPACITOR
	C4	QED41AM-826	E CAPACITOR
	C5	NEH10JM-226NZ	E CAPACITOR
	C6	NCB31EK-103A	CAPACITOR
	C7	NEH10JM-226NZ	E CAPACITOR
	C9	NCT07CH-560A	CAPACITOR
	C10	NCT07CH-560A	CAPACITOR
	C14	PU59913-473K	CAPACITOR
	C15	NEH11HM-105NZ	E CAPACITOR
	C17	PU59913-473K	CAPACITOR
	C18	NCB31EK-103A	CAPACITOR
	C20	QEF80JM-106	TANTAL CAPACITOR
	C21	NCB31EK-103A	CAPACITOR
	C22	NCB31EK-103A	CAPACITOR
	C23	PU59913-473K	CAPACITOR
	C24	NCB31EK-103A	CAPACITOR
	C26	QED41AM-826	E CAPACITOR
	OR	QE0F1AM-826	E CAPACITOR
	C27	NCB31EK-103A	CAPACITOR
	C29	NCT07CH-101A	CAPACITOR
	C30	NCT07CH-101A	CAPACITOR
	C32	NCB31HK-221A	CAPACITOR
	C101	NCF31CZ-104A	CAPACITOR
	C102	NCF31CZ-104A	CAPACITOR
	C103	QEF80JM-106	TANTAL CAPACITOR
	C104	NCT07CH-100A	CAPACITOR
	C105	NCT07CH-100A	CAPACITOR
	C106	NCF31CZ-104A	CAPACITOR
	C107	NCF31CZ-104A	CAPACITOR
	C108	NCF31CZ-104A	CAPACITOR
	C109	QEF81VM-105	TANTAL CAPACITOR
	C120	NCF31CZ-104A	CAPACITOR
	C130	NCT07CH-680A	CAPACITOR
	C131	PU58948-104	CAPACITOR
	L1	PU59022-3	COIL
	L2	PU59022-3	COIL
	L3	PU59022-3	COIL
	L4	PU59022-3	COIL
	L5	PU59022-3	COIL
	L6	PU48530-101K	COIL
	TRAP1	YU41012-Z	TRAP
	BPF1	YU40393	BAND PASS FILTER
	DL1	YU40128	DELAY LINE
	SPC1	PU59915-105	#500SPACER0.010
	TP1	PU58465	TEST PIN
	TP2	PU58465	TEST PIN
	CN-EC1	PU58251-12	CAP HOUSING
	CN-EC2	PU58251-10	CAP HOUSING
	CN-EC4	PU58655-2	CAP HOUSING

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31. CONTROL BOARD ASSEMBLY <57>

*⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	PWBA	YB20011E1-02	CTL BOARD ASSY
	IC1	M5236ML	IC
	Q1	2SB766(RS)	TRANSISTOR
	Q2	2SB709(Q)	TRANSISTOR
	Q3	2SD602(QR)	TRANSISTOR
	Q4	2SC2404C	TRANSISTOR
	Q5	2SC2778C	TRANSISTOR
	D1	RD8.2ESB	ZENER DIODE
	D2	RD8.2ESB	ZENER DIODE
	R2	QRSA08J-221YN	RESISTOR
⚠	R3	PU52108-101	POSISTOR
	R4	QRSA08J-153YN	RESISTOR
	R5	NRVA62D-183N	RESISTOR
	R6	NRVA62D-152N	RESISTOR
	R7	NRVA62D-362N	RESISTOR
	R8	QRSA08J-103YN	RESISTOR
	R9	QRSA08J-102YN	RESISTOR
	R10	QRSA08J-103YN	RESISTOR
	R11	QRSA08J-182YN	RESISTOR
	R12	QRSA08J-182YN	RESISTOR
	R13	QRSA08J-223YN	RESISTOR
	R14	QRSA08J-103YN	RESISTOR
	R15	QRSA08J-272YN	RESISTOR
	R16	QRSA08J-682YN	RESISTOR
	R17	QRSA08J-562YN	RESISTOR
	R18	QRSA08J-821YN	RESISTOR
	R19	QRD161J-561	RESISTOR
	C1	QCFA1EZ-104	CAPACITOR
	C2	QED41CM-566	E CAPACITOR
	C3	QCFA1EZ-104	CAPACITOR
	C4	QED41AM-826	E CAPACITOR
	C6	QEF81CM-226	TANTAL CAPACITOR
	C7	PU58948-104	CAPACITOR
	L1	PU59022-3	COIL
	SW1	PU59676	SWITCH(TACT)
	SW2	PU59676	SWITCH(TACT)
	SW3	PU59676	SWITCH(TACT)
	SW4	PU57008	SWITCH(TACT)
	SW5	PU57008	SWITCH(TACT)
	SW6	PU57008	SWITCH(TACT)
	SW7	PU57008	SWITCH(TACT)
	SW8	PU57008	SWITCH(TACT)
	SW9	PU57008	SWITCH(TACT)
	SW10	PU57008	SWITCH(TACT)
	SW11	PU57008	SWITCH(TACT)
	SW12	PU57008	SWITCH(TACT)
	SW13	PU57008	SWITCH(TACT)
	SW14	PU57008	SWITCH(TACT)
	SW15	YU40137	SWITCH(SLIDE)
	SLD1	YU40951	PLATE
	CN-CT1	PU58655-10	CAP HOUSING
	CN-CT2	PU58655-8	CAP HOUSING
	CN-CT3	PU58655-5	CAP HOUSING
	CN-CT4	PU58654-8	CAP HOUSING

* * *

32. BATTERRY BOARD ASSEMBLY <58>

*⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	PWBA	YB20011C2-02	BATTERY BOARD ASSY
	SW101	YU40385	SWITCH(SLIDE)
	SW102	PU57008-2	SWITCH(TACT)
	SW103	PU57008-2	SWITCH(TACT)

*△	REF NO.	PART NO.	PART NAME, DESCRIPTION
	TML1	YQ40300-1-1	BATT.CONTACT(A)
	TML2	YQ40301-1-2	BATT.CONTACT(B)
	CN-BA1	PU58654-6	CAP HOUSING

33. SW BOARD ASSEMBLY <59>

*△	REF NO.	PART NO.	PART NAME, DESCRIPTION
	PWBA	YB20121A2-01	SWITCH BOARD ASSY
	SW1	PU59717	PUSH SWITCH

34. E CAPACITOR BOARD ASSEMBLY <61>

*△	REF NO.	PART NO.	PART NAME, DESCRIPTION
	PWBA	YB20121A3-01	E.CAP.BOARD ASSY
	C101	YU40265-1	E CAPACITOR
	OR	QEZ0149-567	E CAPACITOR
	C102	YU40265-2	E CAPACITOR
	C103	YU40265-3	E CAPACITOR
	CN-EC1	PU58655-4	CAP HOUSING

35. UPPER DRUM BOARD <91>

*△	REF NO.	PART NO.	PART NAME, DESCRIPTION
	PWB	PDM3161	UPPER DRUM BOARD, X2

36. E. VIEWFINDER BOARD ASSEMBLY <VF>

*△	REF NO.	PART NO.	PART NAME, DESCRIPTION
	PWBA	YU30034-082	E.VIEWFINDER BOARD ASSY
	IC01	BA7125L	IC
	Q01	2SD814R	TRANSISTOR
△	Q02	2SD774	TRANSISTOR
	D01	1SS133	DIODE
	OR	1SS131	DIODE
	D02	1SS252	DIODE
	D03	EAR22-04	DIODE
	OR	ERA22-06	DIODE
	D04	1SS131	DIODE
	OR	1SS130	DIODE
	D05	LN28CALURS	DIODE
	OR	SLH-34LT3	DIODE
	D06	MA4075-M	ZENER DIODE
	R01	QRSA08J-122YN	RESISTOR
	R02	QRSA08F-473YN	RESISTOR
	OR	QRSA08F-433YN	RESISTOR
	OR	QRSA08F-513YN	RESISTOR
	R03	QRSA08J-180YN	RESISTOR
	R04	QRSA08J-563YN	RESISTOR
	R05	QRSA08J-331YN	RESISTOR
	R06	QRSA08J-103YN	RESISTOR
	R07	QRSA08J-823YN	RESISTOR
	R08	QRSA08J-682YN	RESISTOR
	R09	QRSA08J-102YN	RESISTOR
	R10	QRSA08J-102YN	RESISTOR
	R11	QRSA08J-102YN	RESISTOR
	R12	QRSA08J-102YN	RESISTOR
	R13	QRSA08J-102YN	RESISTOR
	R14	QRSA08J-102YN	RESISTOR
	R15	QRSA08J-273YN	RESISTOR
	R16	QRSA08J-471YN	RESISTOR
	R17	QRSA08J-103YN	RESISTOR
	R18	QRSA08J-682YN	RESISTOR
	R19	QRSA08J-122YN	RESISTOR
	R20	QRSA08J-105YN	RESISTOR
	R21	QRSA08J-222YN	RESISTOR
	R22	PU36332-145	RESISTOR,(2.2M)
	R23	PU36332-145	RESISTOR,(2.2M)
	R24	QRSA08J-105YN	RESISTOR
	R25	QRSA08J-224YN	RESISTOR
	R26	QRSA08J-392YN	RESISTOR
	R27	YU30034-155	RESISTOR,(18)
	VR01	YU30034-133	V RESISTOR,H.HORD(10KB)
	VR02	YU30034-135Z	V RESISTOR,HIGHT(1KB)
	VR03	PU36332-147	V RESISTOR,FOCUS(2.2MB)
	VR04	PU36332-146	V RESISTOR,BRIGHT(1MB)
	C01	YU30034-102	CAPACITOR, (2200P)
	C02	PU36332-108	E CAPACITOR, (10/16)
	C03	QCYA1HK-103Z	CAPACITOR
	C04	PU36332-108	E CAPACITOR, (10/16)
	C05	QEK40JM-227	E CAPACITOR
	C06	QER41EM-336	E CAPACITOR
	C07	PU36332-109	E CAPACITOR, (1/50)
	C08	QCYA1HK-223K	CAPACITOR
	C09	QETA1AM-107	E CAPACITOR
	C10	YU30034-047	E CAPACITOR, (0.47/50)
	C11	PU36332-110	E CAPACITOR, (0.1/50)
	C12	QCYA1HK-471K	CAPACITOR
	C13	QCYA1HK-822K	CAPACITOR
	OR	PU36332-115	CAPACITOR
	C14	YU30034-103	TANTAL CAPACITOR, (0.68/35)
	C15	QEK41AM-107	E CAPACITOR
	C16	PU36332-108	E CAPACITOR, (10/16)
	C17	PU36332-109	E CAPACITOR, (1/50)
	C18	QCSA1HJ-201Z	CAPACITOR
	C19	PU36332-108	E CAPACITOR, (10/16)
	C20	QETA1AM-476	E CAPACITOR
△	C21	PU36332-103	CAPACITOR, (1800P/100)
△	OR	PU36332-120	CAPACITOR, (1800P/160)
△	OR	PU36332-102	CAPACITOR, (1500P/100)
△	OR	PU36332-119	CAPACITOR, (1500P/160)
△	OR	PU36332-105	CAPACITOR, (2200P/100)
△	OR	PU36332-106	CAPACITOR, (1500P/500)
	C22	QETA1HM-475	E CAPACITOR
	OR	QER41HM-475	E CAPACITOR
	C23	QEK41AM-107	E CAPACITOR
	C24	PU36332-112	CAPACITOR, (1500P/1000)
	OR	PU36332-107	CAPACITOR
	C25	PU36332-106	CAPACITOR, (1500P/500)
	OR	PU36332-111	CAPACITOR
	C26	PU36332-116	CAPACITOR, (0.068)
	C27	PU36332-116	CAPACITOR
	C28	PU36332-113	CAPACITOR, (0.01)
	L01	YU30034-031	DEFLECTION YOKE
	L02	YU30034-151	COIL, (100)
	OR	PU36332-155	COIL
	OR	PU36332-154	COIL
	L03	YU30034-152	COIL
	L04	YU30034-153	COIL, (330)
	OR	YU30034-154	COIL
△	T01	YU30034-037	F.B.T
	SKT01	YU30034-036	CRT SOCKET ASSY
	WR01	YU30034-035	VF CABLY
△	CP01	ICP-N10	CIRCUIT PROTECTOR
△	TF01	PU36332-153	THERMAL FUSE

SECTION 8
TECHNICAL INFORMATIONS

8.1 MECHACON CPU (IC501) PIN FUNCTION

<table>
<tr><th>PIN No.</th><th>SYMBOL</th><th>I/O FORMAT</th><th>SIGNAL NAME</th><th>IN/OUT</th><th>PIN FUNCTION</th></tr>
<tr><td>1</td><td>Port B 6</td><td></td><td>HA SEL</td><td>OUT</td><td>HEAD AMP SELECT OPERATING OUTPUT, $\overline{\text{SP}}$/LP</td></tr>
<tr><td>2</td><td>7</td><td></td><td>V. REC MUTE (H)</td><td>OUT</td><td>VIDEO REC MUTE OPERATING OUTPUT</td></tr>
<tr><td>3</td><td>$\overline{\text{RES}}$</td><td rowspan="8">–</td><td>RESET (L)</td><td>IN</td><td>BATT IN RESET</td></tr>
<tr><td>4</td><td>XTAL</td><td rowspan="2">4 MHz CLOCK</td><td></td><td></td></tr>
<tr><td>5</td><td>EXTAL</td><td></td><td></td></tr>
<tr><td>6</td><td>MP1</td><td>UNSW 5 V</td><td>IN</td><td></td></tr>
<tr><td>7</td><td>MP0</td><td>GND</td><td></td><td></td></tr>
<tr><td>8</td><td>$\overline{\text{NM1}}$</td><td>POWER SW</td><td>IN</td><td>POWER SW INPUT</td></tr>
<tr><td>9</td><td>$\overline{\text{STBY}}$</td><td>UNSW 5 V</td><td>IN</td><td></td></tr>
<tr><td>10</td><td>Vcc</td><td>UNSW 5 V</td><td>IN</td><td></td></tr>
<tr><td>11</td><td>Port C 7</td><td></td><td>V REC (H)</td><td>OUT</td><td>VIDEO REC MODE (H)</td></tr>
<tr><td>12</td><td>6</td><td></td><td>FLY E ON (H)</td><td>OUT</td><td>FLYING ERASE HEAD OPERATING OUTPUT (H)</td></tr>
<tr><td>13</td><td>5</td><td></td><td>FULL E ON (H)</td><td>OUT</td><td>FULL ERASE HEAD OPERATING OUTPUT (H)</td></tr>
<tr><td>14</td><td>4</td><td></td><td>BIAS ON (H)</td><td>OUT</td><td>BIAS OSCILLATION OPERATING OUTPUT (H)</td></tr>
<tr><td>15</td><td>3</td><td></td><td>FMA REC MUTE (L)</td><td>OUT</td><td>FM AUDIO REC MUTE OPERATING OUTPUT (L)</td></tr>
<tr><td>16</td><td>2</td><td></td><td>SERIAL CLOCK</td><td>IN</td><td>LCD SERIAL DATA TRANSFER CLOCK INPUT</td></tr>
<tr><td>17</td><td>1</td><td></td><td>FMA MUTE (L)</td><td>OUT</td><td>FM AUDIO MUTE OPERATING OUTPUT (L)</td></tr>
<tr><td>18</td><td>0</td><td></td><td>TEXT</td><td>OUT</td><td>8-BIT SERIAL DATA OUTPUT FOR LCD</td></tr>
<tr><td>19</td><td>Port A 0</td><td></td><td>FMA PB (H)</td><td>OUT</td><td>FM AUDIO OPERATING OUTPUT (H)</td></tr>
<tr><td>20</td><td>1</td><td></td><td>CAP FG</td><td>IN</td><td>CAPSTAN FG INPUT 500 Hz</td></tr>
<tr><td>21</td><td>2</td><td></td><td>DRUM FF</td><td>IN</td><td>DRUM FF INPUT 25 Hz</td></tr>
<tr><td>22</td><td>3</td><td></td><td>NA EE (L)</td><td>OUT</td><td>NORMAL AUDIO EE OPERATING OUTPUT (L)</td></tr>
<tr><td>23</td><td>4</td><td></td><td>NA PB (L)</td><td>OUT</td><td>NORMAL AUDIO PB OPERATING OUTPUT (L)</td></tr>
<tr><td>24</td><td>5</td><td></td><td>NA MUTE (L)</td><td>OUT</td><td>NORMAL AUDIO MUTE OPERATING OUTPUT (L)</td></tr>
<tr><td>25</td><td>6</td><td></td><td>P ON OFF MUTE (H)</td><td>OUT</td><td>POWER ON/OFF MUTE OPERATING OUTPUT 2–3 sec</td></tr>
<tr><td>26</td><td>A Vcc</td><td>–</td><td>SW 5 V</td><td>IN</td><td>Vcc FOR ANALOG INPUT</td></tr>
<tr><td>27</td><td>Port D 0</td><td rowspan="8">ANALOG</td><td>EP FM ENV</td><td>IN</td><td>FM PEAK DETECTION IN STILL (Refer to descriptions about pins.)</td></tr>
<tr><td>28</td><td>1</td><td>BATT CHECK</td><td>IN</td><td>BATTERY VOLTAGE CHECK INPUT</td></tr>
<tr><td>29</td><td>2</td><td>KEY A</td><td>IN</td><td><table><tr><td>SW NAME</td><td>STOP</td><td>REW</td><td>FF</td><td>PLAY</td><td>PAUSE</td><td>EJECT</td></tr><tr><td>DC V (STD)</td><td>0</td><td>0.90</td><td>1.53</td><td>2.18</td><td>2.77</td><td>3.46</td></tr></table></td></tr>
<tr><td>30</td><td>3</td><td>KEY B</td><td>IN</td><td><table><tr><td>SW NAME</td><td>REC</td><td>AUDIO DUB</td><td>INSERT</td><td>C.TRIG</td><td>EDIT START/QUICK</td><td>DUB MODE</td></tr><tr><td>DC V (STD)</td><td>0</td><td>0.90</td><td>1.53</td><td>2.18</td><td>2.77</td><td>3.46</td></tr></table></td></tr>
<tr><td>31</td><td>4</td><td>AUDIO L-CH LEVEL</td><td>IN</td><td>DC INPUT FOR AUDIO LEVEL INDICATION</td></tr>
<tr><td>32</td><td>5</td><td>AUDIO R-CH LEVEL</td><td>IN</td><td>DC INPUT FOR AUDIO LEVEL INDICATION</td></tr>
<tr><td>33</td><td>6</td><td>M. DATA A</td><td>IN</td><td><table><tr><td>MODE NAME</td><td>REC LOCK</td><td>FF/REW</td><td>BACK SPACE</td><td>EJECT</td><td>PLAY</td><td>STOP</td></tr><tr><td>DC V (STD)</td><td>3.13</td><td>2.50</td><td>1.88</td><td>1.25</td><td>0.63</td><td>0</td></tr></table></td></tr>
<tr><td>34</td><td>7</td><td>M. DATA B</td><td>IN</td><td><table><tr><td>REEL SENSOR, DEW SENSOR, REC SAFE SW</td><td>LLL</td><td>LLH</td><td>LHL</td><td>LHH</td><td>HLL</td><td>HLH</td><td>HHL</td><td>HHH</td></tr><tr><td>DC V (STD)</td><td>4.38</td><td>3.75</td><td>3.13</td><td>2.50</td><td>1.88</td><td>1.25</td><td>0.63</td><td>0</td></tr></table></td></tr>
<tr><td>35</td><td>A Vss</td><td>–</td><td>GND</td><td></td><td>Vss FOR ANALOG INPUT</td></tr>
<tr><td>36</td><td>Port H 0</td><td></td><td>EXTNAL (H)</td><td>IN</td><td>OPERATING INPUT (H) AT EXTERNAL INPUT</td></tr>
<tr><td>37</td><td>1</td><td></td><td>JIG MODE</td><td>IN</td><td>"H": IN USUAL. "L" : REC RUNNING MODE</td></tr>
<tr><td>38</td><td>2</td><td></td><td>JACK SIG (L)</td><td>IN</td><td>"L" INPUT WITH REMOCON PLUG IN</td></tr>
<tr><td>39</td><td>3</td><td></td><td>REMOTE SIG (L)</td><td>IN</td><td>"L": REC START. "H": REC PAUSE</td></tr>
<tr><td>40</td><td>4</td><td></td><td>COUNTER STOP (H)</td><td>IN</td><td>"H" INPUT WHEN COUNTER READS "0" IN COUNTER MEMORY MODE</td></tr>
</table>

Table 8-1-1 (1) IC501 pin function (1)

<table>
<tr><th>PIN No.</th><th>SYMBOL</th><th>I/O FORMAT</th><th>SIGNAL NAME</th><th>IN/OUT</th><th>PIN FUNCTION</th></tr>
<tr><td>41</td><td>5</td><td></td><td>FADER MODE (H)</td><td>IN</td><td>FADER MODE OPERATING INPUT</td></tr>
<tr><td>42</td><td>Port H 6</td><td></td><td>SYSTEM CONTROL</td><td>IN</td><td>"L": IN USUAL, "H": OPERATION ENABLED (Refer to description on pins)</td></tr>
<tr><td>43</td><td>7</td><td></td><td>MODE CTL MOTOR UL</td><td rowspan="2">OUT</td><td rowspan="2"><table><tr><td>Mode</td><td>BRAKE</td><td>UNLOADING</td><td>LOADING</td><td>BRAKE</td></tr><tr><td>Pin 43</td><td>H</td><td>H</td><td>L</td><td>L</td></tr><tr><td>Pin 44</td><td>H</td><td>L</td><td>H</td><td>L</td></tr></table></td></tr>
<tr><td>44</td><td>4</td><td></td><td>MODE CTL MOTOR LD</td></tr>
<tr><td>45</td><td>3</td><td></td><td>SP(H) / EP(L)</td><td>IN</td><td>REC MODE SELECT SWITCH INPUT</td></tr>
<tr><td>46</td><td>Port J 2</td><td></td><td>END SENSOR</td><td>IN</td><td>END SENSOR PULSE INPUT</td></tr>
<tr><td>47</td><td>1</td><td></td><td>START SENSOR</td><td>IN</td><td>START SENSOR PULSE INPUT</td></tr>
<tr><td>48</td><td>0</td><td></td><td>CTL SIGNAL</td><td>IN</td><td>CTL SIGNAL INPUT 25 Hz</td></tr>
<tr><td>49</td><td>7</td><td></td><td>INSERT (L)</td><td>OUT</td><td>INSERT LED OPERATING OUTPUT (L)</td></tr>
<tr><td>50</td><td>6</td><td></td><td>LCD OPERATE (L)</td><td>OUT</td><td>LCD OPERATING OUTPUT (L)</td></tr>
<tr><td>51</td><td>5</td><td></td><td>LCD OUT ENABLE (H)</td><td>OUT</td><td>LCD DATA TRANSER ENABLE</td></tr>
<tr><td>52</td><td>Port F 4</td><td></td><td>COUNT UP(H)/DOWN(L)</td><td>OUT</td><td>LCD COUNTER UP/DOWN INDICATION</td></tr>
<tr><td>53</td><td>3</td><td></td><td>FADER RQST (H)</td><td>OUT</td><td>FADER REQUEST OPERATING OUTPUT (H)</td></tr>
<tr><td>54</td><td>2</td><td></td><td>REC TIME RST (L)</td><td>OUT</td><td>REC TIME RESET SIGNAL INPUT</td></tr>
<tr><td>55</td><td>1</td><td></td><td>CAMERA P ON (H)</td><td>OUT</td><td>CAMERA SECT. POWER-ON OUTPUT (H)</td></tr>
<tr><td>56</td><td>0</td><td></td><td>BATT ARM (H)</td><td>OUT</td><td>BATTERY ALARM OPERATING OUTPUT (H)</td></tr>
<tr><td>57</td><td>MP2</td><td></td><td>GND</td><td></td><td></td></tr>
<tr><td>58</td><td>Vss</td><td></td><td>GND</td><td></td><td></td></tr>
<tr><td>59</td><td>7</td><td></td><td>CASSETTE LED ON (H)</td><td>OUT</td><td>CASSETTE LED OPERATING PULSE OUT</td></tr>
<tr><td>60</td><td>6</td><td></td><td>CAP MOTOR REF 0</td><td>OUT</td><td rowspan="3"><table><tr><td>Pin 62</td><td>L</td><td>L</td><td>L</td><td>L</td><td>H</td><td>H</td><td>H</td><td>H</td></tr><tr><td>Pin 61</td><td>L</td><td>L</td><td>H</td><td>H</td><td>L</td><td>L</td><td>H</td><td>H</td></tr><tr><td>Pin 60</td><td>L</td><td>H</td><td>L</td><td>H</td><td>L</td><td>H</td><td>L</td><td>H</td></tr><tr><td>D509 INPUT VOLT.</td><td>0</td><td>0.63</td><td>1.25</td><td>1.88</td><td>2.50</td><td>3.13</td><td>3.75</td><td>4.38</td></tr></table></td></tr>
<tr><td>61</td><td>5</td><td></td><td>CAP MOTOR REF 1</td><td>OUT</td></tr>
<tr><td>62</td><td>Port E 4</td><td></td><td>CAP MOTOR REF 2</td><td>OUT</td></tr>
<tr><td>63</td><td>3</td><td></td><td>POWER OFF (H)</td><td>OUT</td><td>POWER OFF OPERATING OUTPUT 0.2 sec</td></tr>
<tr><td>64</td><td>2</td><td></td><td>POWER ON (H)</td><td>OUT</td><td>POWER ON OPERATING OUTPUT 0.2 sec</td></tr>
<tr><td>65</td><td>1</td><td></td><td>SERVO C</td><td>OUT</td><td rowspan="2"><table><tr><td></td><td>PB</td><td>INST</td><td>ASB</td><td>REC</td></tr><tr><td>C</td><td>L</td><td>H</td><td>L</td><td>H</td></tr><tr><td>D</td><td>L</td><td>L</td><td>H</td><td>H</td></tr></table></td></tr>
<tr><td>66</td><td>0</td><td></td><td>SERVO D</td><td>OUT</td></tr>
<tr><td>67</td><td>0</td><td></td><td>TRIG OUT</td><td>OUT</td><td>TRIGGER OUT OPERATING OUTPUT</td></tr>
<tr><td>68</td><td>1</td><td></td><td>DRUM STOP (L)</td><td>OUT</td><td>DRUM MOTOR STOP OPERATING OUTPUT (L)</td></tr>
<tr><td>69</td><td>2</td><td></td><td>SEARCH (H)</td><td>OUT</td><td>SEARCH OPERATING OUTPUT (H)</td></tr>
<tr><td>70</td><td>Port G 3</td><td></td><td>CAP REV (H)</td><td>OUT</td><td>CAPSTAN REV OPERATING OUTPUT (H)</td></tr>
<tr><td>71</td><td>4</td><td></td><td>SERVO MODE (L)</td><td>OUT</td><td>SERVO MODE OPERATING OUTPUT (L)</td></tr>
<tr><td>72</td><td>5</td><td></td><td>V PULSE ON (H)</td><td>OUT</td><td>V PULSE ON OPERATING OUTPUT (H)</td></tr>
<tr><td>73</td><td>6</td><td></td><td>FH (H)</td><td>OUT</td><td>FH CORRECTION OPERATING OUTPUT ("H" IN SPECIAL PB MODE)</td></tr>
<tr><td>74</td><td>7</td><td></td><td>EP MODE (L)</td><td>OUT</td><td>EP MODE OPERATING OUTPUT (L)</td></tr>
<tr><td>75</td><td>0</td><td></td><td>SP MODE (L)</td><td>OUT</td><td>SP MODE OPERATING OUTPUT (L)</td></tr>
<tr><td>76</td><td>1</td><td></td><td>STILL MODE (H)</td><td>OUT</td><td>STILL MODE OPERATING OUTPUT (H)</td></tr>
<tr><td>77</td><td>2</td><td></td><td>SP SEARCH (L)</td><td>OUT</td><td>SP SEARCH OPERATING OUTPUT (L)</td></tr>
<tr><td>78</td><td>Port B 3</td><td></td><td>SP CTL (L)</td><td>OUT</td><td>SPECIAL CONTROL OUTPUT ("L": IN (SEARCH, STILL)</td></tr>
<tr><td>79</td><td>4</td><td></td><td>VIDEO PB (H)</td><td>OUT</td><td>VIDEO PB OPERATING OUTPUT (H)</td></tr>
<tr><td>80</td><td>5</td><td></td><td>VIDEO EE (H)</td><td>OUT</td><td>VIDEO EE OPERATING OUTPUT (H)</td></tr>
</table>

Table 8-1-1 (2) IC501 pin function (2)

8.2 DIGITAL SERVO LSI

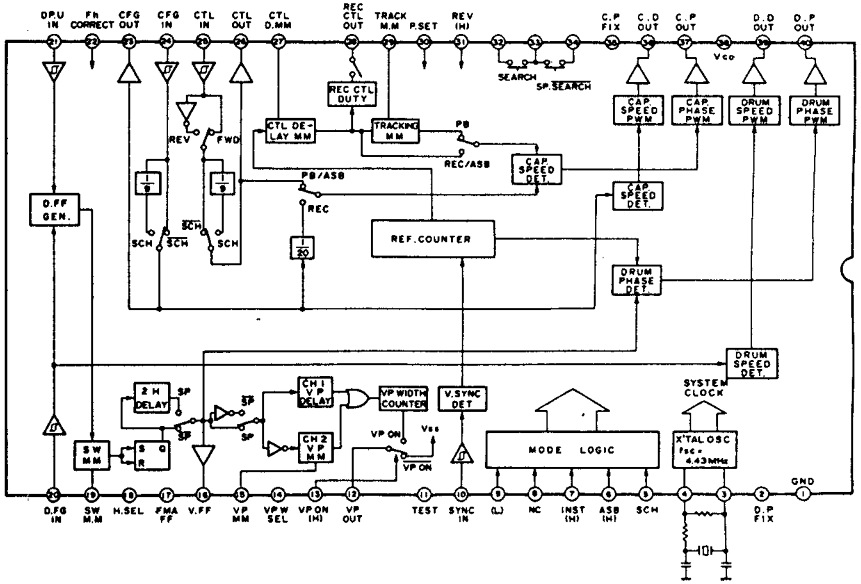
For reference during service, the IC401 block diagram is illustated in Fig. 8-2-1 and the pin functions are noted in Fig. 8-2-2.

1. Drum discriminator mode
   In the following conditions, the drum phase error output is a 50% duty PWM pulse and only the speed system is controlled.

1) Drum FG frequency (1500 Hz) deviates from ±5%.
   This function avoids large picture disturbance due to servo inaccuracy and should be noted during service.
2) High potential at pin 28 (Fh control input)
   Servo is applied in order to obtain playback horizontal sync of 15.625 kHz, which corresponds to the horizontal discriminator mode of earlier models.
3) Low potential at pin 2
   Pin 2 can be used for externally inducing the drum discriminator mode. This is convenient for trouble-shooting during service.

2. Capstan discriminator mode
   In the following conditions, the capstan phase error output is a 50% duty PWM pulse and only the speed system is controlled.

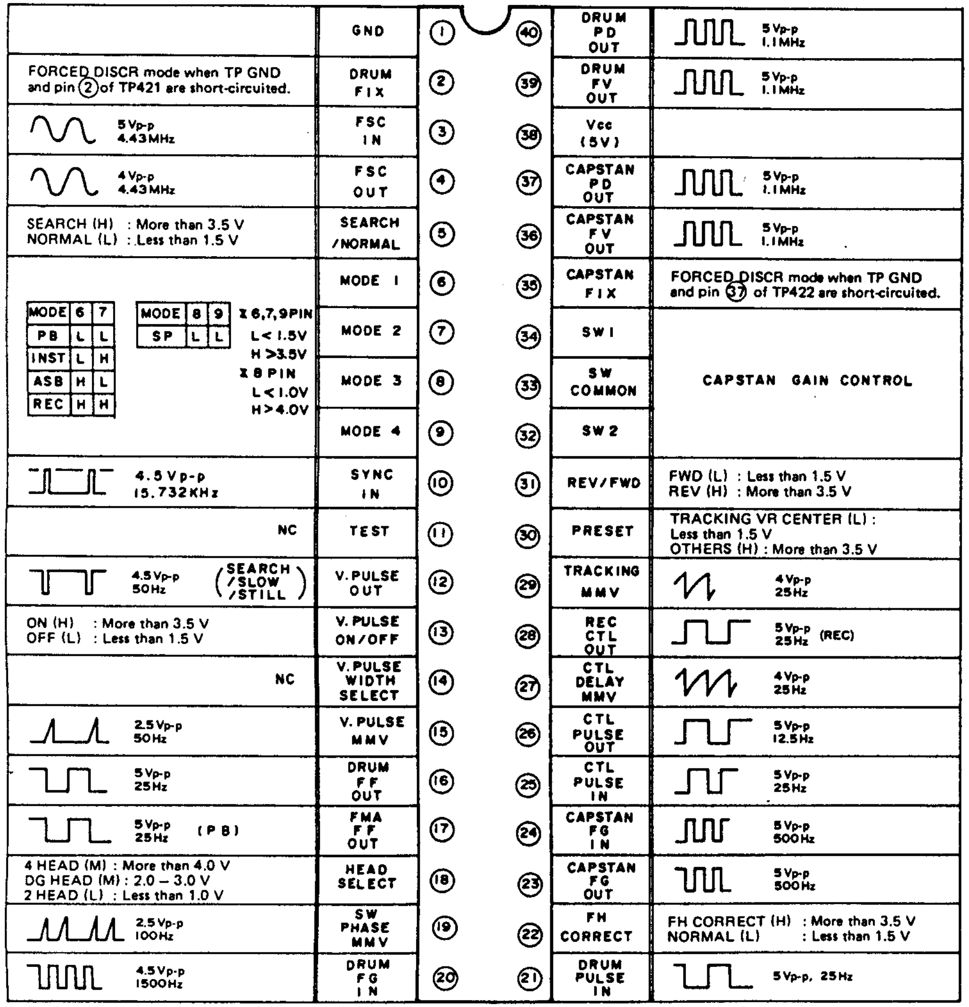
1) Capstan FG frequency (500 Hz) deviates from ±5%.
2) Control pulse ceases during playback mode.
3) Low potential at pin 35
   Pin 35 can be used for externally inducing the capstan discriminator mode. This is convenient for trouble-shooting during service.
   During service, also note that high appears at pin 36 when the drum FG frequency deviates from ±10% and the capstan motor stops.



D.P.U IN
Fh CORRECT
CFG OUT
CFG IN
CTL IN
CTL OUT
CTL D.MM
REC CTL OUT
TRACK M.M
P.SET
REV (H)
C.P FIX
C.D OUT
C.P OUT
Vco
D.D OUT
D.P OUT
SEARCH
SP.SEARCH
REC CTL DUTY
CTL DE-LAY MM
TRACKING MM
PB
REC/ASB
PB/ASB
REC
REV
FWD
SCH
1/9
1/20
D.FF GEN.
REF.COUNTER
CAP. SPEED PWM
CAP. PHASE PWM
DRUM SPEED PWM
DRUM PHASE PWM
CAP. SPEED DET.
DRUM PHASE DET.
DRUM SPEED DET.
SYSTEM CLOCK
2H DELAY
SP
S Q R
SW MM
CH 1 VP DELAY
CH 2 VP MM
VP WIDTH COUNTER
V.SYNC DET
VP ON
Vss
MODE LOGIC
X'TAL OSC fsc = 4.43MHz
GND
D.FG IN
SW M.M
H.SEL
FMA FF
V.FF
VP MM
VPW SEL
VP ON (H)
VP OUT
TEST
SYNC IN
(L)
NC
INST (H)
ASB (H)
SCH
D.P FIX

Fig. 8-2-1 Digital servo LSI block diagram

IC401



	GND	①	㊵	DRUM PD OUT	5 Vp-p 1.1MHz
FORCED DISCR mode when TP GND and pin ② of TP421 are short-circuited.	DRUM FIX	②	㊴	DRUM FV OUT	5 Vp-p 1.1MHz
5 Vp-p 4.43MHz	FSC IN	③	㊳	Vcc (5V)	
4 Vp-p 4.43MHz	FSC OUT	④	㊲	CAPSTAN PD OUT	5 Vp-p 1.1MHz
SEARCH (H) : More than 3.5 V NORMAL (L) : Less than 1.5 V	SEARCH /NORMAL	⑤	㊱	CAPSTAN FV OUT	5 Vp-p 1.1MHz
	MODE 1	⑥	㉟	CAPSTAN FIX	FORCED DISCR mode when TP GND and pin ㊲ of TP422 are short-circuited.
MODE / 6 / 7 PB / L / L INST / L / H ASB / H / L REC / H / H MODE / 8 / 9 SP / L / L ※6,7,9PIN L < 1.5V H > 3.5V ※8 PIN L < 1.0V H > 4.0V	MODE 2	⑦	㉞	SW 1	CAPSTAN GAIN CONTROL
	MODE 3	⑧	㉝	SW COMMON	
	MODE 4	⑨	㉜	SW 2	
4.5 Vp-p 15.732KHz	SYNC IN	⑩	㉛	REV/FWD	FWD (L) : Less than 1.5 V REV (H) : More than 3.5 V
NC	TEST	⑪	㉚	PRESET	TRACKING VR CENTER (L) : Less than 1.5 V OTHERS (H) : More than 3.5 V
4.5 Vp-p 50Hz (SEARCH /SLOW /STILL)	V. PULSE OUT	⑫	㉙	TRACKING MMV	4 Vp-p 25Hz
ON (H) : More than 3.5 V OFF (L) : Less than 1.5 V	V. PULSE ON/OFF	⑬	㉘	REC CTL OUT	5 Vp-p 25Hz (REC)
NC	V. PULSE WIDTH SELECT	⑭	㉗	CTL DELAY MMV	4 Vp-p 25Hz
2.5 Vp-p 50Hz	V. PULSE MMV	⑮	㉖	CTL PULSE OUT	5 Vp-p 12.5Hz
5 Vp-p 25Hz	DRUM FF OUT	⑯	㉕	CTL PULSE IN	5 Vp-p 25Hz
5 Vp-p 25Hz (PB)	FMA FF OUT	⑰	㉔	CAPSTAN FG IN	5 Vp-p 500Hz
4 HEAD (M) : More than 4.0 V DG HEAD (M) : 2.0 – 3.0 V 2 HEAD (L) : Less than 1.0 V	HEAD SELECT	⑱	㉓	CAPSTAN FG OUT	5 Vp-p 500Hz
2.5 Vp-p 100Hz	SW PHASE MMV	⑲	㉒	FH CORRECT	FH CORRECT (H) : More than 3.5 V NORMAL (L) : Less than 1.5 V
4.5 Vp-p 1500Hz	DRUM FG IN	⑳	㉑	DRUM PULSE IN	5 Vp-p, 25Hz

Fig. 8-2-2 IC401 pin function

8.3 INDICATOR I/O

PIN No.	LABEL	IN/OUT	CONTENTS				
1	CANCEL	IN	GND				
2	–	IN	GND				
3	–	IN	NC				
4	–	IN	NC				
5	–	IN	NC				
6	–	IN	NC				
7	VD	IN	Vertical Drive Pulse				
8	HD	IN	Horizontal Drive Pulse				
9	VDD	IN	5 V				
10	OSC 1	IN					
11	OSC 2	OUT					
12	VSS 1	IN	GND				
13	VSS 2	IN					
14	VSS 3	IN	CLOCK BATT GND				
15	X1	IN					
16	X2	OUT					
17	LAP RESET	IN	DATE UNIT	Low : REC TIME RESET button ON or CAMERA OFF			
18	TIME REC ON/OFF	IN		Low : DATE/TIME REC button ON			
19	REC SEL	IN		Low : DISPLAY SELECT button ON			
20	ADJUST SEL	IN		Low : SELECT button ON			
21	SET	IN		Low : DISPLAY SET button ON			
22	LAP ON/OFF	IN		High : LAP indication, Low : No LAP indication			
23	12H/24H	IN	High : 24H indication, Low : 12H indication				
24	DATE 1	IN	DATE SELECT	1 : Low, 2 : Low 60.12.17 PM 3:30	1 : High, 2 : Low 17.12.60 PM 3:30	1 : High, 2 : High 12/17.60 PM 3:30	1 : Low, 2 : High DEC. 17.60 PM 3:30
25	DATE 2	IN					
26	IND (H)	IN	"FADER" BLINK				
27	MODE 1	IN	W. BAL. MODE FEEDBACK	1 : Low, 2 : Low INDOOR	1 : Low, 2 : High FL	1 : High, 2 : Low OUTDOOR	1 : High, 2 : High (AUTO)
28	MODE 2	IN					
29	FULL AUTO	IN	Low : FULL AUTO button ON				
30	WHITE BALANCE	IN	Low : WHITE BALANCE button ON				
31	FOCUS	IN	Low : FOCUS button ON				
32	SHUTTER	IN	Low : SHUTTER button ON				
33	FADER	IN	Low : FADER button ON				
34	AGC	IN	Low : AGC button ON				
35	FADER	OUT	High : FADER reserved				
36	BACK UP	OUT	High : AGC OFF mode				
37	AGC	OUT	High : AGC OFF mode				
38	SHUTTER 1	OUT	SHUTTER MODE SET	1 : Low, 2 : Low STANDARD	1 : Low, 2 : High 1/250	1 : High, 2 : Low 1/500	1 : High, 2 : High 1/1000
39	SHUTTER 2	OUT					
40	WBO 1	OUT	W. BAL. MODE SET	1 : Low, 2 : Low INDOOR	1 : Low, 2 : High FL	1 : High, 2 : Low OUTDOOR	1 : High, 2 : High AUTO
41	WBO 2	OUT					
42	AUTO FOCUS	OUT	High : AUTO FOCUS				
43	INVERTER	OUT					
44	INVERTER	IN					
45	FRONT FOCUS	IN	Low : FRONT FOCUS				
46	CENTER FOCUS	IN	Low : CENTER FOCUS				
47	BACK FOCUS	IN	Low : BACK FOCUS				
48	BATTERY	IN	High : BATTERY ALARM				
49	LLL	IN	Low : LOW LIGHT				
50	CHARACTER	IN	WHITE BALANCE indication (Low : CHARACTER, High: ALPHABET)				
51	NTSC/PAL	IN	Low : NTSC, High : PAL				
52	TAPE END	IN	High : TAPE END (Low : Fixed, Not used)				
53	VIDEO REC	IN	Low : REC mode				
54	SP/EP	IN	High : SP, Low : EP				
55	CAMERA E-E	IN	High : E-E mode				
56	ALC	IN	Low : ALC SW ON				
57	RESET	IN					
58	SMTH CHARACTER 1	OUT	CHARACTER OUTPUT for Electronic Viewfinder				
59	FRINGE 1	OUT	Not used				
60	FRINGE 2	OUT	FRINGE signal OUTPUT for DATE/TIME REC				
61	SMTH CHARACTER 2	OUT	CHARACTER signal OUTPUT for DATE/TIME REC				
62	IRIS +	IN	High : IRIS + indication (IRIS ▲)				
63	IRIS –	IN	High : IRIS – indication (IRIS ▼)				
64	STOP (L)	IN	High : CAMERA ON, Low : CAMERA OFF				

Table 8-3-1 IC1 pin function

8.4 ELECTRIC VIEW FINDER DISPLAY CONTENTS

ELECTRONIC VIEW FINDER DISPLAY	LABEL / IC1 PIN No.	BLINK (2Hz)	BLINK (1Hz)	CAM EE	IND	FAD 0	SHUTTER 2	SHUTTER 1	LAP	SP/EP	V. REC	NTSC/PAL	CHARACTER	WBO B	WBO A	LLL	BATTERY	BF	CF	FF	AFO	IRIS +	IRIS –	ALC
		–	–	55	26	35	39	38	22	54	53	51	50	41	40	49	48	47	46	45	42	62	63	56
FOCUS	■			H														H	L	H	L			
	▶			H														L	H	H	L			
	◀			H														H	H	L	L			
	▶■◀		○	H														H	H	H	L			
				H														H	H	H	H			
	– BATTERY –		○	H													H							
	LIGHT		○	H												L								
W-BALANCE	💡			H									L	L	L									
	▭			H									L	H	L									
	☀			H									L	L	H									
	INDOOR			H									H	L	L									
	FL LAMP			H									H	H	L									
	OUTDOOR			H									H	L	H									
	(AUTO)												H/L	H	H									
DECK MODE	REC			H						H	L													
	—			H						H	H													
	REC			H						H	L													
	EP REC			H						L	L	L												
	EP —			H						L	H	L												
	EP REC			H						L	L	L												
	LP REC			H						L	L	H												
	LP —			H						L	H	H												
	LP REC			H						L	L	H												
LAP	1:23:45			H					H															
FADER	FADER			H		H																		
	FADER	○		H	H	H																		
SHUTTER	S1000			H			H	H																
	S500			H			L	H																
	S250			H			H	L																
				H			L	L																
IRIS	IRIS ▲																					H	L	
	IRIS ▼																					L	H	
																						L	L	
ALC	ALC OFF																							L
																								H

Table 8-3-2 Electronic viewfinder display

SECTION 9

SERVICE GUIDE

9.1 EMERGENCY MODE

Indication (flickering)	Contents
▶ II	• When Loading or Unloading does not finish within 10 sec approx. • When a mode without Loading/Unloading operation is not shifted to another mode within 4 sec approx.
◀◀	• In case of no TU REEL SENSOR INPUT signal in PLAY, REC FF and REW modes, etc.
▶▶	• No DRUM FF INPUT for more than 1 sec approx. nevertheless the drum is rotating.

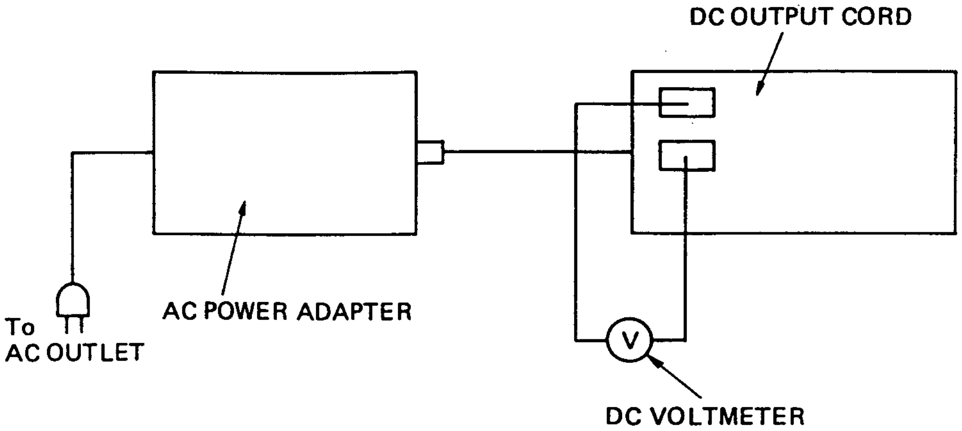
Table 9-1-1 Emergency mode

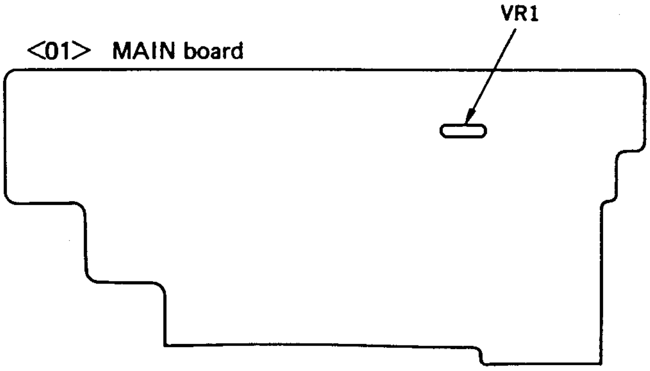
In the Emergency mode all siwtches except the POWER switch are inoperative. To release the set from this mode, turn off the POWER switch once and again turn it on.

SECTION 10
AC POWER ADAPTER (For EK MODELS)

NOTE: For EG models, please refer to Service Manual No. 86047 AA-V12EG.

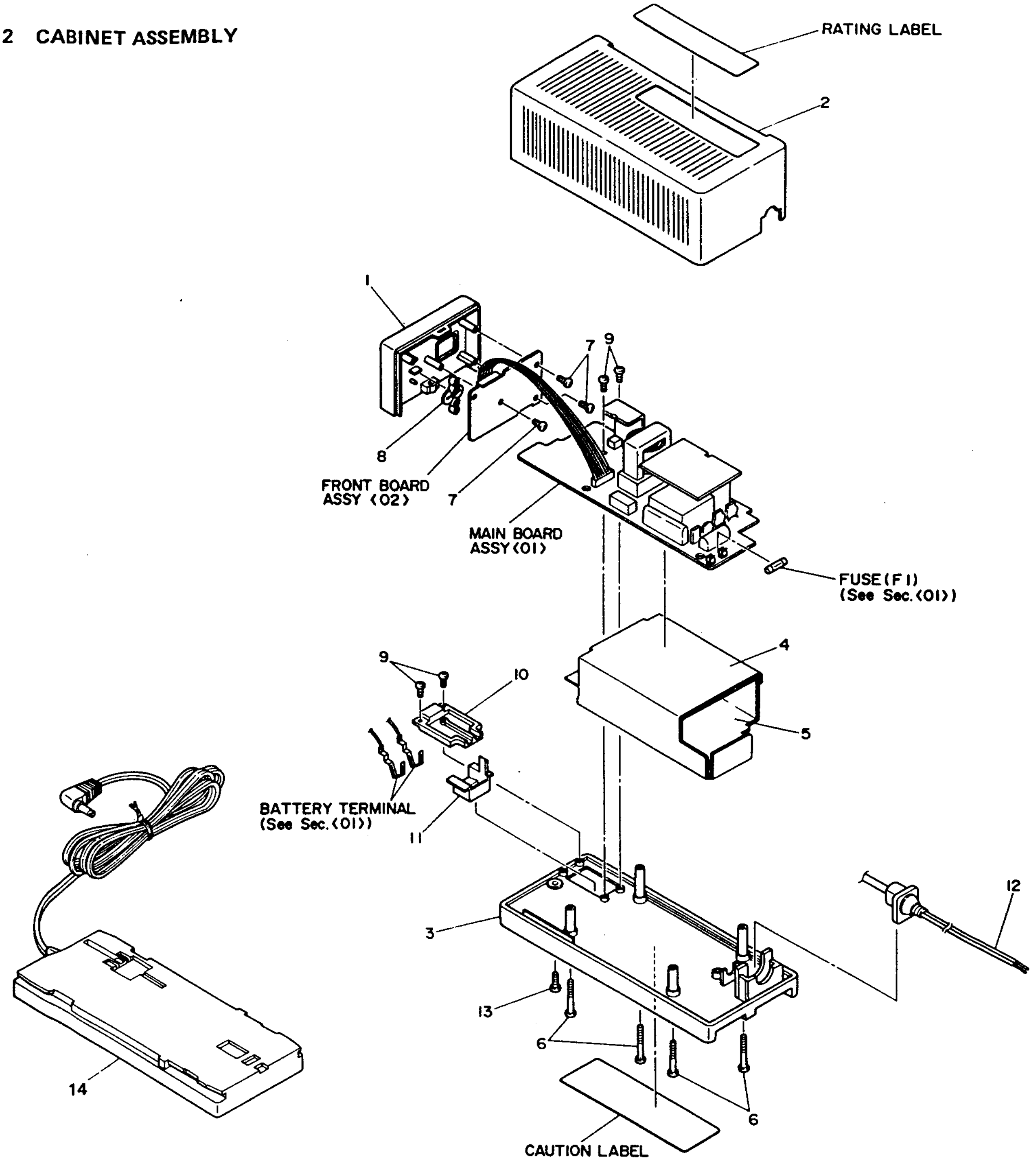
10.1 ADJUSTMENT OF OUTPUT VOLTAGE


DC OUTPUT CORD
AC POWER ADAPTER
To AC OUTLET
V
DC VOLTMETER


VR1
<01> MAIN board

Connect the DC Voltmeter to DC Output cord as shown above, and adjust the VR 1 of MAIN board so that the output voltage of DC Output Cord becomes 12,2 VDC.

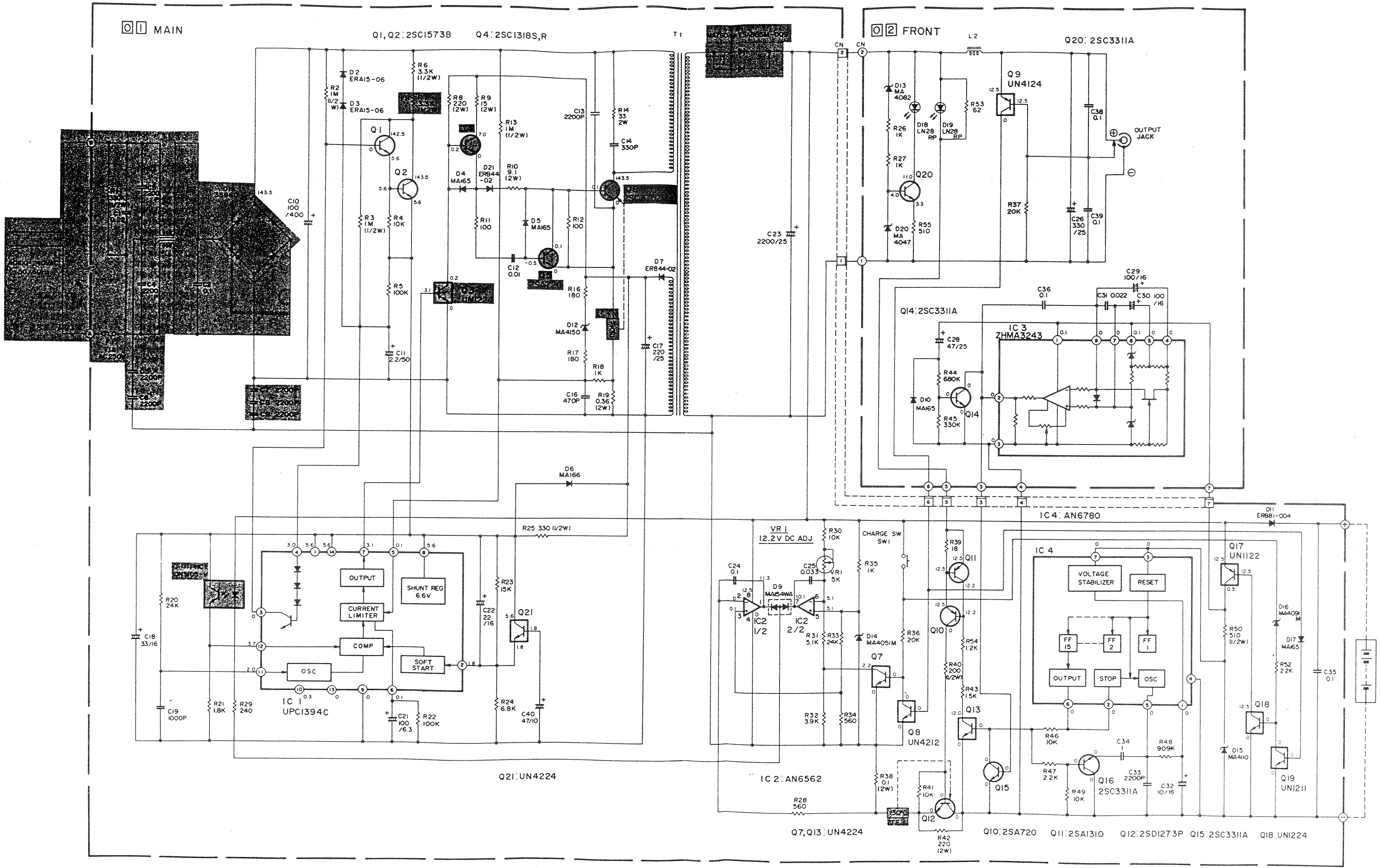
10.2 CABINET ASSEMBLY


RATING LABEL
2
1
7
9
8
FRONT BOARD ASSY <02>
7
MAIN BOARD ASSY <01>
FUSE (F1) (See Sec.<01>)
4
10
9
5
BATTERY TERMINAL (See Sec.<01>)
11
12
3
13
6
14
6
CAUTION LABEL

```
****************************************************
*          2. CABINET ASSEMBLY <M2>                *
****************************************************
```

★△	REF NO.	PART NO.	PART NAME, DESCRIPTION
	1	YU30069-3	FRONT PANEL ASSY
	2	YQ10023-071	TOP COVER
	3	YQ10023-005	BATTERY HOLDER ASSY
△	4	YQ10023-020	SHIELD PLATE C
△	5	YQ10023-021	SHIELD PLATE B
	6	PQ10299-015	SCREW, X4, 2.6 X 25
	7	SPSB2608Z	SCREW, X3
△	8	PQ10243-013	LED CAP
	9	SPSB2606Z	SCREW, X4
	10	PU53200-013	TERMINAL BRACKET
	11	YQ10023-007	TERMINAL COVER
△	12	PQ10243-207	AC CORD
	13	PQ10299-014	SCREW, 2.6X8
	14	YQ10023-014	DC CORD

10.3 SCHEMATIC DIAGRAM

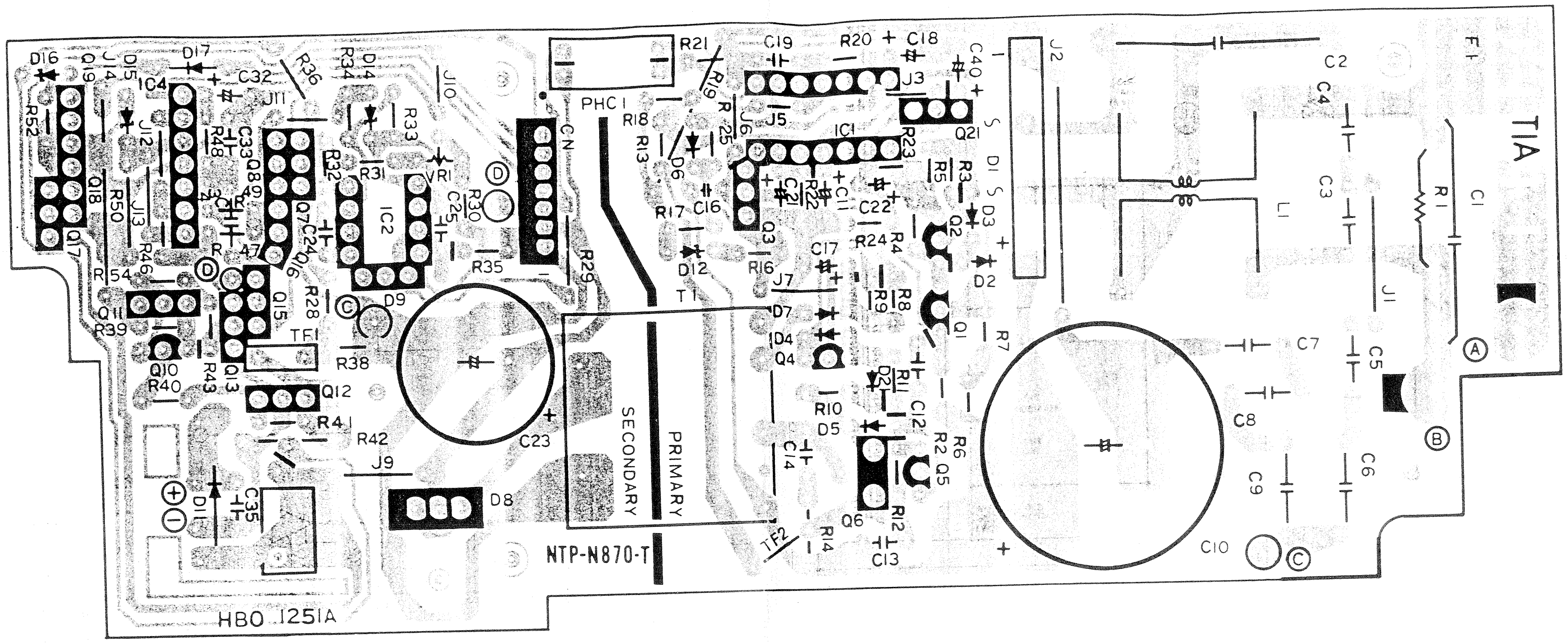

01 MAIN
Q1, Q2: 2SC1573B
Q4: 2SC1318S,R
T1
02 FRONT
Q20: 2SC3311A
L2
D2 ERA15-06
D3 ERA15-06
R2 1M (1/2W)
R6 3.3K (1/2W)
R8 220 (2W)
R9 15 (2W)
R13 1M (1/2W)
C13 2200P
R14 33 2W
C14 330P
D4 MA165
D21 ERB44-02
R10 9.1 (2W)
C10 100 /400
R3 1M (1/2W)
R4 10K
R5 100K
C11 2.2/50
R11 100
D5 MA165
R12 100
C12 0.01
D7 ERB44-02
R16 180
D12 MA4150
R17 180
R18 1K
C16 470P
R19 0.36 (2W)
C17 220 /25
C23 2200/25
Q1
Q2
D13 MA 4082
D18 LN28 RP
D19 LN28 RP
R53 62
Q9 UN4124
R26 1K
R27 1K
Q20
D20 MA 4047
R55 510
R37 20K
C26 330 /25
C38 0.1
C39 0.1
OUTPUT JACK
⊕
⊖
Q14: 2SC3311A
C36 0.1
C31 0.022
C29 100/16
C30 100 /16
IC 3 ZHMA3243
C28 47/25
R44 680K
D10 MA165
R45 330K
Q14
D6 MA166
R25 330 (1/2W)
IC 4: AN6780
D11 ERB81-004
OUTPUT
SHUNT REG 6.6V
CURRENT LIMITER
COMP
OSC
SOFT START
IC 1 UPC1394C
C18 33/16
R20 24K
C19 1000P
R21 1.8K
R29 240
C21 100 /6.3
R22 100K
R23 15K
C22 22 /16
Q21
R24 6.8K
C40 47/10
Q21: UN4224
VR 1 12.2V DC ADJ
R30 10K
C24 0.1
C25 0.033
VR1 5K
D9 MA154WA
IC2 1/2
IC2 2/2
R31 5.1K
R33 24K
CHARGE SW SW1
R35 1K
D14 MA4051M
R36 20K
Q7
R32 3.9K
R34 560
Q8 UN4212
IC 2: AN6562
R28 560
R38 0.1 (2W)
R41 10K
Q12
R42 220 (2W)
Q7, Q13: UN4224
R39 18
Q11
Q10
R54 1.2K
R40 200 (1/2W)
R43 1.5K
Q13
Q15
IC 4
VOLTAGE STABILIZER
RESET
FF 15
FF 2
FF 1
OUTPUT
STOP
OSC
R46 10K
R47 2.2K
R49 10K
Q16 2SC3311A
C34 1
C33 2200P
R48 909K
C32 10/16
Q17 UN1122
R50 510 (1/2W)
D16 MA4091 M
D17 MA165
R52 2.2K
D15 MA4110
Q18
Q19 UN1211
C35 0.1
CHARGE OUT
Q10: 2SA720
Q11: 2SA1310
Q12: 2SD1273P
Q15: 2SC3311A
Q18: UN1224

NOTES: Unless otherwise specified;

1. All resistance values are in ohms (1/4 W)
2. To measure voltages at T1 primary side, measure with D1 ⊖ grounded, at T1 secondary side, measure with FRONT board ① grounded. Connect a battery pack BN-V90U.
3. Shaded (▨) parts are critical for safety. Replace only with specified parts nombers.

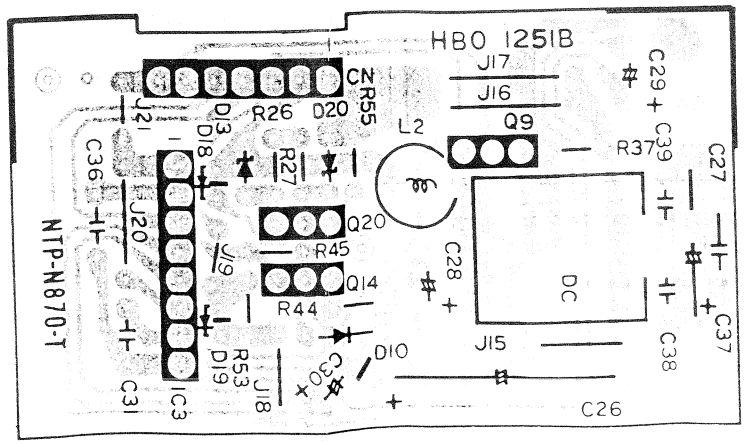
10.4 CIRCUIT BOARDS

– MAIN BOARD <01> –



D16
Q19
J14
D15
D17
IC4
C32
J11
R36
R34
D14
J10
R21
PHC1
C19
R20
C18
C40
J2
F1
C2
C4
T1A
R52
J12
R48
C33
Q8
R33
R18
R13
R19
R25
J6
J5
IC1
J3
Q21
D1
Q18
R50
J13
R32
R31
VR1
IC2
C25
R30
CN
D6
R23
R5
R3
D3
C3
L1
R1
C1
Q17
R46
R47
C24
Q7
Q16
R35
R29
R17
C16
C15
R22
C11
C22
Q2
C17
R24
R4
D2
R54
D9
D12
T1
R16
J7
R9
R8
J1
Q11
R39
Q15
R28
TF1
D7
D4
Q4
Q1
R7
C7
C5
Q10
R40
R43
Q13
R38
C23
D13
R11
C12
C8
Q12
R41
R42
SECONDARY
PRIMARY
R10
D5
R6
R2
Q5
J9
C14
C9
C6
D11
C35
D8
TF2
R14
Q6
R12
C13
C10
NTP-N870-T
HBO 1251A
A
B
C
D

– FRONT BOARD <02> –



HBO 1251B
J17
J16
C29
C39
CN
R55
J21
D13
R26
D20
L2
Q9
R37
C27
C36
D18
R27
J20
Q20
R45
C28
Q14
R44
DC
C37
C38
NTP-N870-T
J19
J15
D10
C30
R53
D19
J18
C31
IC3
C26

10.5 ELECTRICAL PARTS LIST

3. MAIN BOARD ASSEMBLY <01>

*⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	PWBA	YQ10023-022	MAIN BOAD ASSY
	IC1	UPC1394C	IC
	IC2	AN6562	IC
	IC4	AN6780	IC
⚠	PHC1	ON3105-V	PHOTO COUPLER
	Q1	2SC1573B	TRANSISTOR
	Q2	2SC1573B	TRANSISTOR
⚠	Q3	UN1224	TRANSISTOR
⚠	Q4	2SC1318S,R	TARNSISTOR
⚠	Q5	2SA720	TRANSISTOR
⚠	Q6	2SC3752M,L	TRANSISTOR
	Q7	UN4224	TRANSISTOR
	Q8	UN4212	TRANSISTOR
	Q10	2SA720	TRANSISTOR
	Q11	2SA1310	TRANSISTOR
	Q12	2SD1273P	TRANSISTOR
	Q13	UN4224	TRANSISTOR
	Q15	2SC3311A	TRANSISTOR
	Q16	2SC3311A	TRANSISTOR
	Q17	UN1122	TRANSISTOR
	Q18	UN1224	TRANSISTOR
	Q19	UN1211	TRANSISTOR
	Q21	UN4224	TRANSISTOR
⚠	D1	D3SB60	DIODE
	D2	ERA15-06	DIODE
	D3	ERA15-06	DIODE
	D4	MA165	DIODE
	D5	MA165	DIODE
	D6	MA166	DIODE
	D7	ERB44-02	DIODE
⚠	D8	MA760	DIODE
	OR	ESAB85M-	DIODE
	D9	MA154WA	DIODE
	D11	ERB81-004	DIODE
	D12	MA4150	ZENER DIODE
	D14	MA4051-M	ZENER DIODE
	D15	MA4110	ZENER DIODE
	D16	MA4091-M	ZENER DIODE
	D17	MA165	DIODE
	D21	ERB44-02	DIODE
⚠	R1	QRC121J-334	RESISTOR
	R2	YQ10023-037	RESISTOR,1M,1/2W
	R3	YQ10023-037	RESISTOR,1M,1/2W
	R4	QRD14AJ-103YN	RESISTOR
	R5	QRD14AJ-104YN	RESISTOR
	R6	YQ10023-317	RESISTOR, 3.3K, 1/2W
⚠	R7	YQ10023-318	FUSIBLE RESISTOR, 3.3K, 1/2W
	R8	YQ10023-304	RESISTOR,220,2W
	R9	YQ10023-305	RESISTOR,15,2W
	R10	YQ10023-306	RESISTOR,9.1,2W
	R11	QRD14AJ-101YN	RESISTOR
	R12	QRD14AJ-101YN	RESISTOR
	R13	YQ10023-037	RESISTOR,1M,1/2W
	R14	YQ10023-319	RESISTOR, 33, 2W
	R16	QRD14AJ-181YN	RESISTOR
	R17	QRD14AJ-181YN	RESISTOR
	R18	QRD14AJ-102YN	RESISTOR
	R19	YQ10023-307	RESISTOR,0.36,2W
	R20	QRD14AJ-243YN	RESISTOR
	R21	QRD14AJ-182YN	RESISTOR
	R22	QRD14AJ-104YN	RESISTOR
	R23	QRD14AJ-153YN	RESISTOR
	R24	YQ10023-308	RESISTOR,6.8K,1/4W
	R25	QRD121J-331	RESISTOR
	R28	QRD14AJ-561YN	RESISTOR
	R29	QRD14AJ-241YN	RESISTOR
	R30	QRD14AJ-103YN	RESISTOR
	R31	QRD14AJ-512YN	RESISTOR
	R32	QRD14AJ-392YN	RESISTOR
	R33	QRD14AJ-243YN	RESISTOR
	R34	QRD14AJ-561YN	RESISTOR
	R35	QRD14AJ-102YN	RESISTOR
	R36	QRD14AJ-203YN	RESISTOR
	R38	YQ10023-038	RESISTOR, 0.1, 2W
	R39	QRD14AJ-180YN	RESISTOR
	R40	YQ10023-310	RESISTOR,200,1/2W
	R41	QRD14AJ-103YN	RESISTOR
	R42	YQ10023-311	RESISTOR,220,2W
	R43	QRD14AJ-152YN	RESISTOR
	R46	QRD14AJ-103YN	RESISTOR
	R47	QRD14AJ-222YN	RESISTOR
	R48	YQ10023-039	RESISTOR, 909K, 1/4W
	R49	QRD14AJ-103YN	RESISTOR
	R50	YQ10023-312	RESISTOR,510,1/2W
	R52	QRD14AJ-222YN	RESISTOR
	R54	QRD14AJ-122YN	RESISTOR
	VR1	YQ10023-040	VR,5K
⚠	C1	QFZ9022-224	CAPACITOR
⚠	C2	QFZ9022-104	CAPACITOR
⚠	C3	YQ10023-206	CAPACITOR, 2200P
⚠	C4	YQ10023-206	CAPACITOR, 2200P
⚠	C5	YQ10023-206	CAPACITOR, 2200P
⚠	C7	YQ10023-206	CAPACITOR, 2200P
⚠	C8	YQ10023-206	CAPACITOR, 2200P
⚠	C9	YQ10023-206	CAPACITOR, 2200P
	C10	PQ10243-313	E CAPACITOR, 100/400V
	C11	QETBIHM-225	E CAPACITOR
	C12	YQ10023-201	CAPACITOR, 0.01/50V
	C13	YQ10023-030	CAPACITOR, 2200P
	C14	YQ10023-031	CAPACITOR, 330P
	C16	YQ10023-032	CAPACITOR, 470P/50V
	C17	YQ10023-034	E CAPACITOR, 220/25V
	C18	QETBICM-336	E CAPACITOR
	C19	YQ10023-202	CAPACITOR, 1000P/50V
	C21	QETB0JM-107	E CAPACITOR
	C22	QETBICM-226	E CAPACITOR
	C23	YQ10023-036	E CAPACITOR, 2200/25V
	C24	YQ10023-029	CAPACITOR, 0.1/50V
	C25	YQ10023-209	CAPACITOR, 0.033/50V
	C32	QEK51CM-106	E CAPACITOR
	C33	QFM71HJ-222	CAPACITOR
	C34	QFV41HJ-105	CAPACITOR
	C35	QEV41HJ-104	CAPACITOR

♦⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	C40	QETA1AM-476	E CAPACITOR
⚠	L1	YQ10023-002	LINE FILTER
	SW1	YQ10023-012	MICRO SWITCH
⚠	T1	YQ10023-001	SW TRANS.
⚠	HD1	YQ10023-004	FUSE HOLDER,X2
	HS1	YQ10023-008	HEAT SINK1
	HS2	YQ10023-009	HEAT SINK2
	SCW1	PU53200-201	SCREW,X2 FOR Q6,D8,3X8
	SCW2	DPSP3008M	SCREW,X2 FOR HEAT SINK1,2
	TML1	PU53200-015	BATTERY TERMINAL,X2
	W1	PQ10243-010	WASHER, FOR HEAT SINK2
	CN1	YQ10023-013	CONNECTOR
⚠	TF1	PQ10243-311	THERMAL FUSE
	TF2	PQ10243-311	THERMAL FUSE
⚠	F1	QMF51E2	FUSE, NOT INCL. MAIN BOARD ASSY 1A, 250V

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4. FRONT BOARD ASSEMBLY <02>

PWBA	YQ10023-023	FRONT BOAD ASSY
IC3	ZHMA3243	IC
Q9	UN4124	TRANSISTOR
Q14	2SC3311A	TRANSISTOR
Q20	2SC3311A	TRANSISTOR
D10	MA165	DIODE
D13	MA4082	ZENER DIODE
D18	LN28RP	LE DIODE
D19	LN28RP	LE DIODE
D20	MA4047	ZENER DIODE
R26	QRD14AJ-102YN	RESISTOR
R27	QRD14AJ-102YN	RESISTOR
R37	QRD14AJ-203YN	RESISTOR
R44	QRD14AJ-684YN	RESISTOR
R45	QRD14AJ-334YN	RESISTOR
R53	QRD14AJ-620YN	RESISTOR
R55	QRD14AJ-511YN	RESISTOR
C26	YQ10023-035	E CAPACITOR, 330/250V
C28	QEK51EM-476G	E CAPACITOR
C29	PQ10243-322	E CAPACITOR, 100/16V
C30	QEK51CM-107G	E CAPACITOR
C31	YQ10023-033	CAPACITOR, 0.022/50V
C36	QFV41HJ-104	CAPACITOR
C38	QFV41HJ-104	CAPACITOR
C39	QFV41HJ-104	CAPACITOR
L2	YQ10023-003	COIL
J1	YQ10023-011	DC JACK
SP1	YQ10023-015	SPACER